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Authority and Liberty in Architecture

II THE VERNACULAR MOVEMENT[1]

THE IMMEDIATE influence of Ruskin's writings, although it was not entirely bad, had its effect upon not only the many who mistook liberty for license but the few capable of discrimination and whose labours were to lay the foundations of a real revival of architecture. Foremost among these were William Morris and Philip Webb. In the year 1859 Morris decided to build a house close to the village of Upton in Kent, but as he had then abandoned the profession of architecture for the decorative arts he placed the designing of the house in the hands of his friend Philip Webb, with whom he had worked in Street's office. Morris wanted the house, not merely as a place to live in but as a fixed centre and background for his artistic work, and in it his theories and those of Webb on domestic building and decoration were to be worked out in practice. Accordingly Webb designed the shell. Externally it was faced with red brick, which in those days was a sufficient novelty to justify the name of the Red House; small panes were also used instead of the usual large sheets of plate glass. Morris and his friends designed and executed the interior decorations. The plastered walls and ceilings were treated with designs in tempera. The furnishing presented a problem. Taste was at its worst, having lamentably fallen since the Great Exhibition chiefly under the influence of the Second Empire mode in upholstery. There was not a chair, a table or a bed, any curtains or hangings, a candlestick or a jug to be bought, ready made, that could satisfy the taste of Morris, who condemned all such objects of manufacture as intolerably ugly—Persian carpets and blue and white china being the sole exceptions to this rule. Consequently Morris and Webb designed them all specially; and out of the designing and furnishing of this house sprang Morris's career as a decorative manufacturer and the so-called Queen Anne Revival in architecture.[2]

Why this movement became known as the Queen Anne Revival is not evident. The appellation is anything but descriptive. Far from being confined to the period of Queen Anne, which suggests a very restricted taste, it was eclectic. It borrowed freely from a wide range of tradition including Dutch architecture. Also, the movement was something more than a revival, inasmuch as its aim was less to revive any particular period of architecture than to get back to the basic principles underlying all styles accepting vernacular traditions as the starting point. Thus it was a broadening of the concept of architecture, since by including vernacular it identified the concept of architecture with that of building. It was a new approach to the problem of style, an approach from the point of view of local building traditions instead of from the point of view of those more finished types of design that have the misfortune to be called monumental architecture. For such reasons I have called the movement the Vernacular movement, which is certainly more descriptive and nearer the truth than the Queen Anne Revival. The name is not entirely satisfactory since it suggests to the uninitiated the idea that the principles of the movement are only capable of a very limited application with no relevance to the higher forms of the art.

The new movement first made its influence felt in house furnishing and decoration. The following description of the changes introduced appears in an article on Morris by Walter Crane:

"The simple back framed old English Buckingham-

[1] For the preceding Chapter on The Gothic Revival, see the JOURNAL for September, 1926.
[2] See Mackail's Life of William Morris. Vol. 1, p. 139 seq.

shire elbow chair with its rush bottomed seat was substituted for the wavy-backed and curly-legged stuffed chair of the period with its French polish and concealed and often very unreliable construction. Bordered Eastern rugs and fringed Axminster carpets on plain or stained boards or India matting took the place of the stuffy pile carpets; rich or simple flat patterns acknowledged the walls and expressed the proportions of the room instead of trying to hide both under bunches of sketchy roses and vertical stripes; while instead of the big plate glass mirror with ormolu frame which had long reigned over the cold white marble mantelpiece, small bevelled glasses were inserted in the panelling of the high wood mantelshelf or hung over in it convex circular form. Slender black wood or light brass curtain rods and curtains to match the coverings or carry out the colour of the room displaced the heavy mahogany and ormolu battering-rams with their fringed and festooned upholstery which had hitherto overshadowed the windows of the so-called comfortable classes. Plain white or green paint for interior woodwork drove graining and marbling to the public-house; blue and white Nankin, Delft or Gres de Flandres routed Dresden and Sèvres from the cabinet; plain oaken boards and trestles were preferred before the heavy mahogany telescopic British dining-table of the mid-nineteenth century; and the deep high backed canopied settee with loose cushions ousted the castored and padded couch from the fireside." [3]

Such were the principal ways, as to outward form, in which the new movement in domestic decoration made itself felt. Beginning with the houses of a comparatively limited circle, mostly artists, it rapidly spread and it was not long before cheap vulgarized imitations of Morrisian patterns and furniture found their way to the market, eventually bringing about a temporary reaction. In architecture the progress was slower, for it was not until the seventies that the movement began to attract serious attention. Perhaps the reason for this is to be found in the fact that Philip Webb was not accustomed to illustrate his work in the building papers, presumably because he was of the opinion that to do so encouraged imitators whose incompetence brought genuine work into discredit. But in the seventies Norman Shaw came on the scene and he had no such misgivings. He was the finest black and white artist of his day and he impressed the new ideas on the profession by a series of striking designs mostly for town and country houses.

By their unmistakable superiority, they stood out in sharp contrast against contemporary work, as anyone must admit who consults the files of the Building News for those years. It was not merely that Shaw's designs stood head and shoulders above other domestic work illustrated, but that we would be very unwilling to-day to class the other work as architecture at all. This accounts for Norman Shaw's reputation in the nineties when the battle was won,—a reputation which had its foundation in the fact that he effected a revolution in architecture which, in its essentials, still remains.

The public and the profession did not at first know what to make of his designs, for they challenged all their notions of architecture. The public had identified the use of large sheets of plate glass with the cause of progress and evolution in much the same way that many architects to-day regard the use of reinforced concrete. It seemed to them that a return to small panes was an anachronism,—like putting the clock back. It also seemed as incredible that his example would be followed as a return to the social economy of the Middle Ages seems incredible to present-day society. Norman Shaw's use of white paint for window frames was also a startling innovation which, taken in conjunction with his use of small panes, led his critics to speak of his architecture as being after the manner of the doll's house. They refer to Shaw's peculiar manner of design and to his eccentricity. It is interesting to recall these things; we have moved so far away from the ideas of the seventies and accepted so much of what Shaw stood for that it is instructive to read how he appeared to his contemporaries. For example, consider how Shaw's New Zealand Chambers struck Ferguson, for what he says is none the less instructive because it is partly true.

"It was," Ferguson wrote, "in the very heart of the City and about this time (1873) that Norman Shaw's peculiar manner of design first attracted serious attention by means of a building in Leadenhall Street called New Zealand Chambers, certainly a most courageous innovation. It seemed to be, in a word, a 'Queen Anne' experiment of the most inappropriate kind in the most inappropriate place, rejecting *in limine* the rule of proceeding by degrees, and leaping at one bound to the uttermost limit of probable endurance, planting defiantly in one of the most sordidly bustling streets of the town, full of plate glass show windows and redolent of nothing in the world but the keenest economic competition, a sort of Rip Van Winkle commercial establishment in which no one would expect from the look of it that the simplest transaction of the counting house could be accomplished in less than a week." [4]

He then goes on to tell his readers that it is a mistake to suppose the so-called Queen Anne style was suddenly introduced to the architectural world by this example, for it had been slowly making its way in the privacy of artistic society for ten or fifteen years. In a discussion at the Institute the movement is referred to as the Kensington movement and we learn it was regarded entirely as a fashion, ephemeral in its nature, which would have its day and vanish, leaving not a trace behind it.

Yet this has not proved to be true. For though we do not stand today exactly where Shaw stood, yet it is

[3] *William Morris.* By Walter Crane. Scribner's Magazine, July, 1897.

[4] Ferguson's History of Modern Architecture. Vol. II, p. 151.

just those things which raised the ire of his critics that have remained,—small panes and white paint. We realize today how fundamental small panes are to any reasonable treatment of design, but it took twenty or thirty years to persuade the profession that their use was anything more than a bit of eccentricity. It is also well to remind architects today, when it is fashionable to disparage the work of Shaw, that it was he who successfully challenged the reign of plate glass. I remember when as a pupil I first became acquainted with the designs of Norman Shaw how completely they revolutionized any ideas I had of architecture; and any knowledge of the subject I may have, any skill in design I may possess, are to be traced to the initial impulse which he supplied. And what is true of me is, I imagine, true of most architects, if not all of my generation. We knew that in bringing back small panes, in inculcating lessons of simplicity and restraint in design, Shaw had removed the greatest of all obstacles to the revival of architecture, and for that reason the rebirth of architecture dates from Shaw and his predecessors, Morris and Webb.

We may acknowledge our general indebtedness to Norman Shaw whilst regretting that in one direction his influence was pernicious, namely, in the fashion he created for the use of sham half-timbering and tile-hanging. Shaw appears to have been led into this folly by a too close regard for theoretical considerations. The so-called Queen Anne Revival not only arose from a recognition of the fact that ecclesiastical Gothic was unsuitable for domestic work, but it was also part of a movement which sought, by insistence upon national tradition in design, to counter the fashion for Italian and French Gothic which obtained in the fifties and sixties. This gave rise to the question as to what constituted national tradition, for its character varied from county to county. The architecture of Kent was different from that of Essex, while both differed still more from that of Yorkshire. In these circumstances it became evident that the appeal to national tradition had no finality about it. To carry the idea to its logical conclusion meant the acceptance of local style and tradition, which was the position at which the movement eventually arrived. Now, in Surrey, where most of Shaw's houses were built, the only local style is that of the picturesque which makes a free use of half-timber, tile-hanging, rough-cast and weather-boarding. The explanation of this style appears to be that when bricks were first introduced the builders who had hitherto been accustomed to half-timber construction did not realize that a house would stand with its walls only nine inches thick, and as timber was cheap and bricks expensive they sought to economize by reinforcing their brickwork with timber-framing instead of building thicker walls, such timber-framing generally beginning at the first floor level. But this form of construction was not satisfactory because of the difficulty of making the joint between the timber and the brickwork weathertight. To remedy this defect one of three things was subsequently done. The side or sides of a building that were exposed to the driving rains were covered with tile-hanging, rough-cast or weather-boarding as the case might be. The result was very picturesque, but it was not a kind of building that could very well serve as the basis of a revival of architecture under changed circumstances; for the style was a result of growth that had its basis in ignorance as to the real possibilities of brickwork. Nevertheless, Shaw made the attempt. His study of Surrey style could not have been very close, for while he employed half-timbering and tile-hanging he did not follow the rational local usage, but employed them decoratively, much as took his fancy. His genius enabled him to pull it off and to give his designs an appearance of structural reality that they did not really possess. It was fraudulent and when men of lesser ability followed his example the fraud became manifest. Half-timbered and tile-hung houses became more and more indefensible until at last they became a byword of contempt. The bottom was reached when speculative builders began to imitate half-timbering in cement.

It is extremely doubtful as to whether Shaw ever repented of this misdirection he gave to domestic architecture, for the evidence is not conclusive. But whether he repented or not he did something to introduce a corrective, for in the year 1890 he built No. 170 Queen's Gate in the Georgian style, which turned the current of taste in that direction. It should also be remembered that his influence was consistently exerted during the nineties in favour of the Renaissance. His designs for the Gaiety Theatre and Hotel (now Marconi House) and the Piccadilly Hotel, and the influence he exercised as assessor of competitions, were instrumental in turning the taste of architects who favoured the Renaissance from French to English models, and in encouraging simplicity of design. In view of such facts it is ungrateful of the Classical School today to remember only Shaw's errors, and to ignore its large indebtedness to him.

For the space of eighteen years the movement was without a spokesman. Even Morris, who in later life became so well known as a lecturer on architecture and the crafts, was content to assume that good work would of itself produce its own influence apart from any active attempt to inculcate first principles by organized teaching; and it was not until the year 1877 that he delivered his first lecture which was given to the Trades Guild of Learning and which was entitled "The Lesser Arts."[5] The title is not without sig-

[5] In *Hopes and Fears for Art.*

nificance because it shows what was uppermost in his mind—the conviction that all the arts were interdependent and that the major arts could not survive if the minor ones suffered neglect. Morris insisted that what he had to say was scarcely more than an echo of what Ruskin had said in the chapter in "On the Nature of Gothic," in *"The Stones of Venice,"* where, he told his audience, the truest and most eloquent words that could be said on the subject were to be found. Yet in spite of this disavowal on the part of Morris of any difference between his point of view and that of Ruskin he had, I think, moved further away from the position of Ruskin than perhaps he was aware. Ruskin's teaching became a different thing after it had infiltrated through the mind of Morris. For whereas Ruskin approached the problem of art primarily from the point of view of the major arts, Morris approached it from the point of view of the minor ones. Ruskin is for ever discoursing on the relations of sculpture and painting to architecture, whereas Morris loves to dwell on the beauty of the cottages of the countryside. This suggests that in his concept architecture was primarily a matter of building simply, in good proportion, with beautiful material, in a natural manner. This and not the decorative is the basis of Morris' teaching—a fact that has been strangely overlooked by many of his critics who suppose that because in his work Morris was primarily concerned with decoration he thought of architecture entirely in such terms. It is true to say that Morris thought of architecture as an assemblage of the crafts but, necessarily, the decorative ones.

The extent to which Morris expressed the point of view of Norman Shaw and other members of the movement must be entirely a matter of conjecture. For though the ideas enunciated by Morris were implicit in the movement from the start, it is an open question to what extent they were consciously held. If we may judge from the actual work produced it seems probable that though Morris and Webb broke with the Gothic Revival to the extent of recognizing the importance of vernacular architecture, it was only the more ornate examples that at first interested them, and it was only by degrees that they came to an appreciation of simpler work. The tendency of the movement towards greater simplicity is its ultimate justification; for it means it moved towards fundamentals. In contrast with the Gothic Revival, it may be said that whereas the Gothic Revival was dominated by the antiquarian spirit, the so-called Queen Anne Revival was primarily a movement of taste and experiment. It broke down that restricted view of architecture which limited it to the more ornate and formal examples of the styles, and by securing recognition for the fundamental importance of vernacular art it prepared the way for the great awakening of architecture and the crafts that took place in the nineties.

A. J. Penty.

Cities Old and New—IV

GREEK CITIES IN LEGEND AND HISTORY

I

THE SUBJECT of Greek cities in legend and history would be an attractive one if dealt with in a book of at least a thousand pages, and beautifully printed and bound, of course. Indeed, it seems singular that no one so far has ventured to produce a substantial volume on this matter, replete as it is with interest and significance. Some writers, like Freeman, Holm, Schubring, Cavallari, Pais and Lenormant, have enriched our knowledge of the Hellenistic cities in Sicily and in Magna Græcia. Others, Rostovtseff and Bilabel, for instance, have treated some particular group of the Greek colonies. Again, others have written monographs on many of the Hellenistic centers at home or abroad, from Athens to Sinope and Cyrene. In fact, so much has already been done in the way of preparation that the day is probably not distant when a book on Greek cities in legend and history will appear, and which, we hope, will delight our minds and our eyes.

One of the main difficulties the author of this prospective work will have to overcome will be to strike a proper balance between the great cities of the mother country and those that arose in foreign lands. For the precedence of the former, however obvious it may be in historical respect, is not one of absolute superiority. And from the viewpoint of city development in general we are just as interested in Syracuse or Tarentum, Miletus or Rhodes, as in Athens, Corinth, Argos or Sparta. Indeed, only few chapters of Greek urban history seem as fascinating as those that deal with the colonies in Sicily and in Magna Græcia; and many of its most brilliant pages have for their object the Ionian and Dorian cities in Asia Minor.

Whatever space the author may allot to the various sections and whatever result he may achieve in

writing of them, he will have the pleasure of roving about, sometimes on land, but more often on the sea. And can anything in the line of travel, real or imaginary, be quite as enjoyable as a cruise on the Mediterranean, frequently interrupted by descents on the coasts? On rare opportunities only will it be necessary to leave the vicinity of the sea, as most Greek cities of note are situated in a sea-board position or very near the coast.

II

Among these coastal towns there is one which, in particular, will always be a favorite with the students of Greek civilization—the City of Rhodes. Its spectacular rise was almost unique in the pre-Hellenistic, Greek world. Only one city, Megalopolis in Arcadia, founded in 370 B. C., seems to offer a parallel. But Megalopolis was extensively devastated in 222 B. C. by the Spartans; and at the time of Pausanias, to whom we owe a lengthy, highly valuable description of Megalopolis, the great city was completely in ruins, "a desert," the sight of which caused the Greek writer to reflect, in a beautiful passage, on the transitoriness of all things human and of cities in particular. The city of Rhodes, however, has survived to the present day, but its condition in the year 1926 gives no evidence of its past greatness and magnificence. More eloquent are the testimonies of the ancient writers with regard to Rhodes. Hardly any city of antiquity has been so frequently and unreservedly extolled for its splendor and its beauty, both much enhanced by the scenic grandeur of its amphitheatrical sea-board site.

Strabo, the great geographer, is only one among many who sang the praise of Rhodes. "With regard to harbors, roads, walls, and other buildings," he says, "it so much surpasses other cities that we know of no equal, much less superior, to it." Monumental in itself, Rhodes became still more impressive through the interesting historical background afforded by its environs. Although its own history did not begin until the year 407 (or 408) B.C. when the city was founded, an historian, writing on Rhodes, would not do justice to the subject, if he gave merely an account of its foundation and of its subsequent fortunes. There is in this respect a great difference between Rhodes and those Greek cities which in the Hellenistic Age arose in the near Orient; Greek plantations in foreign lands, as the latter were, their very origin was lacking in those indigenous historical associations which surrounded the rise of the city of Rhodes.

This circumstance secured to Rhodes a place of particular distinction among those new centers in which Hellenistic culture flourished. The city was of recent origin, yet it shared in the glory of very ancient local traditions. It was much smaller than Antioch, on the Orontes, or Alexandria in Egypt, in population, yet it was superior to these great cities by virtue of those memories the mere mention of which is conjured up by its name.

When men flocked to Rhodes from far and near, in its heyday as a seat of culture, these memories must have been ever-present in their minds, and they must have added to the fascination of a city which was blessed, in many ways, with extraordinary advantages, and therefore exerted an unusual attraction. "Such of life as remains to me, at least if I succeed in what I desire, I shall spend in quiet at Rhodes," Gaius Martius Calvena once wrote to Cicero, his friend, and Cicero himself, in a letter, referred to Rhodes as "a convenient place to retire to." It seems at that time to have been the consensus of opinion that no place was better suited for the enjoyment of leisure, and Decimus Junius Brutus, the conspirator against Cæsar, in writing to a relative, confirmed this predilection; "if exile awaits me," he said, "I go to Rhodes." Happy, indeed, was the expatriate who could choose this city for his residence.

To-day—as in the days when Cicero, Julius Cæsar and other eminent Romans were among the pupils of Apollonios Molon, the great Rhodian rhetorician—visitors to the island of Rhodes are enraptured with its wonderful natural beauty. "I do not know in the whole world a more excellent strategic position, nor a more beautiful sky, nor a more smiling and fecund soil," wrote Lamartine about the island of Rhodes in his "Voyage en Orient." Within sight of the Asiatic mainland, not far from the hallowed promontory of the Cnidian peninsula, the island rises out of the depths of the Mediterranean into that marvellous, almost supernatural sunshine that caresses its soil, designated by Pindar as an earthly abode of the Sun-god. Down through the ages it was told how Zeus, at the request of Helios, caused the island to emerge out of the Ægean, and the great poet embodied this ancient, beautiful legend in one of the Olympian odes. Rhodes was sea-born and became sacred, the favorite domain of the Sun-god, whose seven children, the Heliadæ, born of a nymph or of a heroine named Rhodos, inhabited the island in the mythical ages. Its first inhabitants, however, according to the legends, were the Telchines, praised by some for their skill in manufacturing iron and bronze into beautiful weapons and implements, but disparaged by others as vile charmers and enchanters who used to besprinkle animals and plants with the water of the Styx mixed with sulphur in order to destroy them.

Most legends have some background of reality. The island of Rhodes, which Helios, during his daily wanderings in the watery depths, saw glisten alluringly like a hidden, mysterious gem, no doubt originated as the result of a natural upheaval, just as did Delos and other islands of the Ægean. And the tale

of the Telchines may perhaps be connected with the assumed, early occupation of Rhodes by the ubiquitous Phœnicians. But the island, as is proven by the many stone implements its ground has yielded, must have been inhabited long before the Phœnician invasion. As we proceed through its adolescent ages, its status becomes somewhat clearer, thanks to the numerous relics which indicate its close and lively connections with the Greek mainland in the Mycenæan Ages. At this period, in the second millennium B.C., the obscurity that shrouds its earlier existence seems faintly illuminated as if by the first glimmer of dawn. It is to this era, undoubtedly, that we must assign the rise of those three Rhodian cities which were destined to play dominant parts in the history of the island for many centuries to come—the cities of Ialysos, Cameiros and Lindos, immortalized in the Iliad.

"Valiant and tall, the son of Hercules,
Tlepolemus, nine vessels brought from Rhodes,
By gallant Rhodians mann'd who tripartite
Were settled, and in Ialysus dwelt,
In Lindus and Cameiros white-stone hills."

Thus sings Homeros. The Rhodian Greeks, under Tlepolemos, according to the poet, took part in the Trojan War. Argos, which in antiquity was considered the oldest city in Greece, was the place of their origin, whence Tlepolemos, the Argive ruler, fled to Rhodes with a numerous following after having slain his uncle Licymnios. So far the legends. We can accept them as giving valuable evidence on one capital point. They reveal that the urban triad of Lindos, Ialysos and Cameiros, which in 408/07 B.C. founded the city of Rhodes, existed in the Mycenæan Age, as has been verified by the important archæological discoveries of the past sixty or seventy years.

The foundation of the three renowned cities, in one mythical version, was ascribed to the three sons of Kercaphos, one of the Heliadæ, and they were, according to this legend, named after them. Tlepolemos, however, was also mentioned as their founder. Their origin is veiled in darkness, impervious to the rays of historic light, but it is possible, even probable, that Ialysos and Cameiros, as is assumed by various historians, were founded by the Phœnicians before the arrival of the Greeks. However this may be, it was in the Greek era that the island of Rhodes became an important center of civilization, and if the cities of Ialysos, Lindos and Cameiros were famous in antiquity and are memorable to-day, it is due wholly to the part played by them in a purely Hellenistic development.

Their chief title to glory, no doubt, is to have given birth to the illustrious city of Rhodes, whose foundation is to be designated as one of the most remarkable instances of synœcism in the Hellenic world. This event marked, in the history of the three parental cities, the climax of their career and the beginning of their decline. At the time of Strabo, only four centuries after the foundation of the city of Rhodes, the great Ialysos was a humble village. At the middle of the second century of the Christian era Ialysos and Cameiros were merely heaps of ruins. Only Lindos then survived—and it exists to-day as a dormant little town, resting peacefully at the foot of its ancient acropolis, the mighty, precipitous rock, which, six hundred feet high, rises out of the sea, and once was crowned with the temple of Athene Lindia—one of the most celebrated of all Greek sanctuaries.

Lindos is situated on the east coast of Rhodes, it looks out toward the horizon of dawn. Perched magnificently in their lofty station above the lowly dwellings, the temples of its acropolis glistened in the flaming light of sunrise, greeting from afar the approaching seafarer. The receding mountain slopes, soon ablaze with a golden lustre, invited his gaze to wander from the sea-level until it reached the highest peak of the island, the summit of Mount Atabyros. (On a bright and clear day, *i.e.*, on most days of the year in these "celestial regions," Mount Atabyros can be seen as far as Crete and even Cyprus.) Whether seen from far or near, it was, in the days of our seafarer, always the same sacred mountain, the massive basis on which rested the oldest of the Rhodian temples, consecrated to Zeus Atabyros and founded, according to tradition, in the pre-Hellenistic ages by Althæmenes, who forsook his homeland, Crete, for Rhodes in consequence of an oracular prediction—as is told by Diodorus Siculus on the authority of Zenon, the Rhodian historian.

Rising steeply from the west shore of the island to an altitude of more than four thousand feet, Mount Atabyros commands a panoramic view of the Ægean and adjoining waters such as is offered at no other point. The mountain ranges of Crete, whose nearest cape, the Samonium promontory, is one hundred and ten miles distant, appear in the southwest, fading away westward far beyond the intermediate, narrow and craggy island of Carpathos, which is interposed in the perspective like the silhouette of a *coulisse* before a remote and dim background. Sweeping southward and eastward over the expanses of the Mediterranean, the eye, after having described a vast semi-circle, arrests itself at the sight of the Lycian headlands on the south coast of Asia Minor. We catch a glimpse of that part of the Lycian coast where the city of Patara, of Apollonian fame, once was situated. And then the glance glides rapidly westward over a continuous scenery of capes, bays, inlets and mountains of voluptuously beautiful forms, a scenery that has its termination and its climax, on the west, in the

Cnidian peninsula and the Ægean islands. So luminous and transparent is the air that the spot where the city of Cnidos once basked in the same external sunshine is plainly visible; it lies at the western extremity of the Cnidian peninsula, at the Sacred Promontory, the Triopian Cape, forty-five miles distant from Mount Atabyros. The view extends northward as far as the islands of Icaria and Samos, the northernmost of the Sporades. In the very center of this insular world, the home-land of Apelles, the island of Cos, alluring with the colorful splendor of luxuriant gardens, raises its lofty outline, immediately beyond the Triopian Cape. "It lies at the entrance of Ceramic gulf like a vigilant guardian of the native soil of Herodotos, or like a huge dolphin ready to swim." * And we, from our vantage point, can see the peninsula on which Halicarnassos, Herodotos' home-city, was situated. And we remember what Herodotos tells, that Halicarnassos, Cos, Cnidos, Lindos, Ialysos and Cameiros formed the Dorian Hexapolis which later, by the exclusion of Halicarnassos, was transformed into a Pentapolis, whose center of union and of worship was the temple of Apollo at the Triopian Cape.

To this center the people of Rhodes, of Cos, and of Cnidos used to flock on the days of the Dorian festival, consecrated to the Triopian Apollo and celebrated with sacrifices, horse races, gymnastic exercises and musical contests. The Rhodians, their minds astir with joyous anticipation, fared forth in their ships for this great event from Ialysos, Cameiros and Lindos, and from every convenient place of embarkation on the Rhodian coast. They set out as the best sailors and the ablest ship-builders of the Greek world, in craft big and small, beautiful to behold—and more so on this occasion than on any other. To the solemn and joyful reunion they brought greetings from distant places, from those colonies in Asia Minor, in Sicily, in Italy and elsewhere, which had been founded by Rhodians or by men of Rhodian descent, alone or in association with others. Proud of their native island, they were not less proudly conscious of having founded the Sicilian City of Gela, flourishing and great, which in its turn had originated the rich, the beautiful, the magnificent Akragas; at the time of its greatest prosperity it was second only to one of the Greek colonies. They could—and did—boast of their achievements in colonization and their extensive commerce, of their skill in navigation and their pioneering in the framing of model maritime laws. And it seems logical that they at last founded the city of Rhodes (to the plan of which I shall return in a subsequent article), whose harbors are praised by Strabo as superior to those of any other port, and whose dockyards, where the swiftest Greek ships were built, forbade outsiders to enter under the penalty of death. The strongly fortified city became the bulwark of independence which proved able to resist the most determined and powerful attacks. From its foundation dates the beginning of the great period of the political history of Rhodes. But before we enter on this phase of its existence, let us start on a cruise to Sicily and to Italy, there to visit a few of those cities which the Rhodians founded or in whose foundation they took part.

NILS HAMMARSTRAND.

* Paton and Hicks, The inscriptions of Cos., p. 1.

From Foreign Shores

What's the Use

MY DOCKS are piled high with a mass of material, the accumulation of months, from which I am to select the illustrations for this present offering, and something of which is to inspire my literary muse. But I find selection difficult as most of the design is on a dead level plane—high or low is a matter of personal opinion—while the subject matter of the text contains little of the inspirational, little that has not already received in these papers about all the consideration that I care to pay it. Competitions, architectural education, registration, professional ethics, crticism; all abstractions which are growing thin and which are of interest to the individual only when crystallized into a concrete case and laid on the individual's door-step. Now and then an argument is presented along one or another of these lines which one would like to follow for the moment; now and then a statement is made which one would like to challenge, to question, or, perhaps to endorse—but what's the use!

In my present, if not altogether optimistic at least not altogether pessimistic, mood—induced, not by indigestion let me hope but, rather, by the jazzy conditions surrounding modern life and its expression in art—I feel incapable of relating clearly and definitely all these literary topics, these abstractions, to that architectural reality which is plan, design and construction. Perhaps design should have come first as the including and controlling factor in plan and construction; we need not argue that point now but may simply content ourselves with an acceptance of the fact that

architecture is a unity in which design, plan and construction find themselves given the highest expression possible and compatible with human needs and ideals, which it is the province of architecture to serve and to advance.

As To These Abstractions

Now, if the psychology surrounding competitions serves, as many are convinced it does, to lead always and inevitably to the production and ultimate selection of the trite and the commonplace, what's the use of discussing competitions from any angle? Especially, what's the use of refining codes and splitting hairs on rules of procedure! If architectural education consists, as so many think it does, in impressing upon immature and uncultured youths mere architectural forms and conventions, and developing powers of selection only as among these forms and conventions, in seemingly utter ignorance or disregard of the fundamental and vital principles of honesty, consistency, applicability to time, place, and need, what's the use of wasting breath on architectural education! Why not better expend our energies on an educational system and environment which, beginning with the child, shall provide a cultural background for the masses up out of which shall come architects able to understand them and their spiritual and material needs and competent to interpret these needs and minister to them? Wasn't it lucky for the world that an international system of architectural training never got a hold in ancient Egypt, in the Athens of Pericles, in Agra, in Constantinople, in Mediaeval France! The fact seems to be that the architectural school is making the world commonplace. But on a higher plane! It is interjected. Maybe so. Look at Egypt, and at Rome, and Persia, and India, and far away Thibet. Look at Hagia Sophia and Chartres and—look anywhere—and decide for yourself.

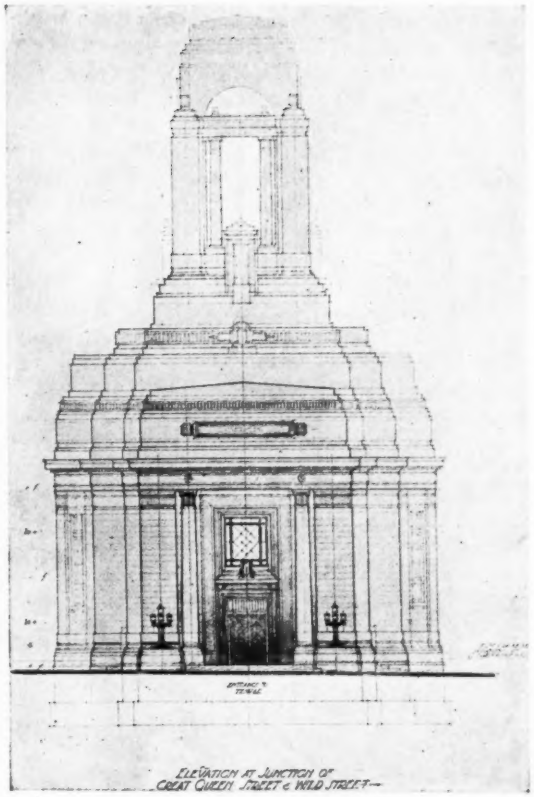
Why do many of the architects of Great Britain, following an unfortunate American precedent, seek to shackle their art by a self-imposed registration? The public does not demand it; does not realize or at all care for its supposed benefits. What's the use, when registration can only tend to standardize; to make each and every prospective architect pass the same examination and train for it as does each and every other one! I imagine art, that is freedom and beauty of expression, will thrive better without the conventionalizing bonds.

The Real Reason

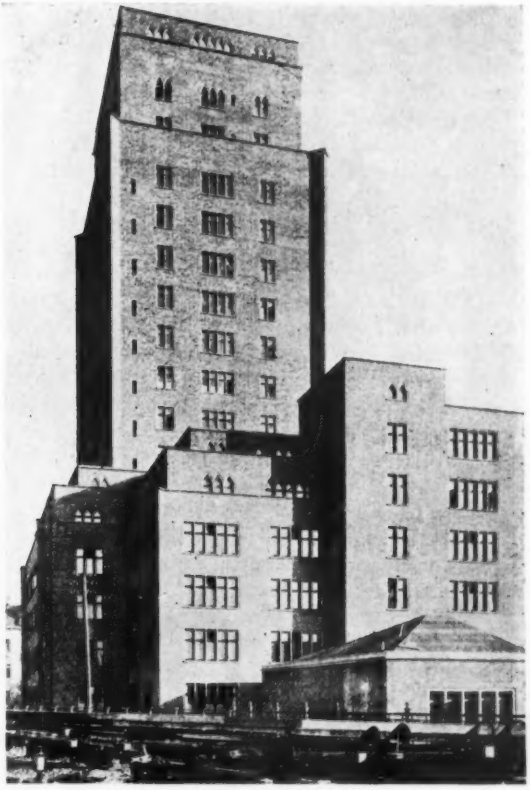
But we shall not have to dig down very deeply into our professional consciousness to discover the real reason for registration and ethical codes and educational systems and aversion to public criticism of contemporary work. Your own and your professional brother's *business* must not be interfered with. The architectural business must be kept in the hands of the conventionally trained and especially of the registered practioner. Business is to be protected and art, the joyous and spontaneous expression of the life of the people, may go hang. Business is to be protected and not that fostered in which the people will take joy and delight. For the people do not take joy and delight in conventional architecture. Only the learned and very sophisticated know that it is architecture and therefore to be embraced in the category of things to be reverenced. You can't scare the people into embracing conventional architecture as into embracing conventional religion. When the practicing graduate of the conventional architectural school can assume the same authority over the destiny of the immortal soul as does the practicing graduate of the priests' college the people will be made to accept conventional architecture and to love it as they accept and love conventional religion. Architects, at least, should learn the difference between art and conventional religion—the elements of fear and of inferiority do not enter into the acceptance and enjoyment of art; and the super-imposed authority of the school or of tradition should not control its practice.

As To Criticism

Just a glance at that matter of criticism. If it is merely a matter of checking up on formulae or of comparing superficial standards or conventions—what's the use! If, however, fundamentals have been violated, if the interests of the people have been not only disserved but betrayed, the people have a right to specific knowledge of the facts and he who imparts that knowledge is a public benefactor. But he who cannot impart that knowledge had best keep his pen in his pocket and his tongue from wagging. When I see a premiated design, as in a recent important British competition, which could not be materialized as indicated because of inadequate provision for the structural factor, I feel that, perhaps, a slight criticism would not be amiss; criticism of the designer and of the assessors, or judges, in the competition. But—what's the use! The design is altogether conventional and the loss would be only monetary were the building to collapse under construction. And, again; when I note that the wining design, (and most of the others,) in an even more important British competition bears not the sligthest trace of emotional or joyous content but was concocted, seemingly, by one plodding laboriously and without inspiration over a draughting board, adding line after line, until the requisite spartial areas had been provided to obtain the required cubage, and then bunching at the corner a few more superimposed horizontal spaces just for luck—when I see this sort of thing being done and accepted in the name



You get this by shoving the T-square up a peg at a time, emphasizing a line now and then and remembering to set back



From Wasmuth's Monatshefte für Baukunst

DAS HOCHHAUS AM HANSARING, KÖLN
JAKOB KOERFER, *Architect*
The executed building. One of scores of designs based on relating this building to the scheme and skyline of the City.

From The Architect and Building News

WINNING DESIGN BY H. V. ASHLEY & WINTON NEWMAN
The plan has very good qualities

From The Architect and Building News

BANK OF ENGLAND, VIEW FROM LOTHBURY
HERBERT BAKER, A. R. A., *Architect*
The domestic quality of the English character will proclaim itself in the roofs and composition

of monumental architecture, I wonder if there is not a place for the critic in the economy of art and a place for the educator in the economy of life. I will say, some of the plans were intelligently conceived and developed as practicable working areas; but imagination was not present at the birth and never entered later into the designs either through vicarious or direct suffering. The premiated design, however, unfortunately does lend itself to structural requirements.

Another Serious Serial

In *The Architect and Building News,* London, Mr. A. Trystan Edwards, voluminous writer on subjects architectural, is running a new series entitled "Things I Dislike," which one who has followed Mr. Edwards' previous writings could well imagine need never stop through dearth of material. Like others of us, myself included, Mr. Edwards likes himself. As for me, I like buildings because I read my own stresses and strains and experiences into them, inasmuch as I have these matters in common with the author of the designs who expressed himself through his work. That is, liking myself, I like those buildings better in which the author has expressed, or embodied if you will, a spirit like my own. I don't like a building because *it feels* as it makes me to feel. A building is insensate—it doesn't feel; I feel myself into it. But to Mr. Edwards, if he means what his words seem to say, a building feels and thinks and acts towards other buildings and towards its surroundings as though endowed with sentient qualities. He has spoken of a building as holding this or that attitude towards other buildings or towards its environment. Therefore I can understand why Mr. Edwards should be susceptible to numerous dislikes; especially towards buildings and works of art which mock him, which have feelings he may or may not be able to entertain, and to which it is difficult if not even hazardous to administer other than verbal chastisement. In a recent symposium on criticism, conducted by *The Architects Journal,* London, Mr. Edwards suggests that the critic should be subject to criticism. This sentiment stands under a portrait which shows Mr. Edwards in the guise of an able seaman. I'm going to make up to him; for some dear Little Buttercup may come along some day and prove that he was exchanged at birth and that, Ralph Rackstraw like, really "he is captain of us all."

Personality in Publications

It is interesting to contemplate the character breathed into the various publications which come to me from foreign shores, (via the JOURNAL editorial office,) by their editors and publishers. *L'Emulation,* Brussels, and certain of Wasmuth's publications, Berlin, have beautifully reproduced plates of fine workmanship. Other German publications have most complete and comprehensive studies of the varied aspects of some important problem, mostly in sketch form; and rough sketch form at that. Many of the beautifully reproduced plates hold little or nothing of interest to me. Many of the rough, almost crude, sketches in the German periodicals are instinct with life; are bold to the verge of the primitive, but powerful and frequently spiritually endowed. Some thing is speaking through those sketches which someone will "dislike" and will not refrain from saying so—but somehow they invigorate me like a potent draught.

Especially do the German publications lead in the presentation of town planning and industrial housing schemes, both in the matter of quantity and of quality. The child is not neglected in the plan nor in its realization. I should like to give space to illustrations of this civic feature of German art, but can not do the subject justice in that allotted me.

The Gold Medal

I am pleased to note in the various British journals that the R. I. B. A. gold medal for the best street frontage erected in 1925 has been awarded to Sir Edwin L. Lutyens for his Britannic House in Finsbury Circus, London. A cut of the building has already appeared in these columns and I have commented most faborably on the design. It is possessed of a real charm. I wish I could say the same of Sir Edwin's recent Peace or War Memorials. My reaction to these, especially to the most recent, is that it takes more than setbacks and arches to produce an impression of grace, or charm, or power. It takes more than concentrated manual labor at a draughting board with Tee square, triangles and compasses. If I am correct in my ratings Sir Edwin has not since then reached the heights which to so many admirers he is deemed to have attained in the Cenotaph in Whitehall. I saw the Cenotaph in the spiritual and physical atmosphere of Anzac Day (25 April), the anniversary of Gallipoli, and the emotion induced vibrated in depths deeply underlying the well-spring of tears.

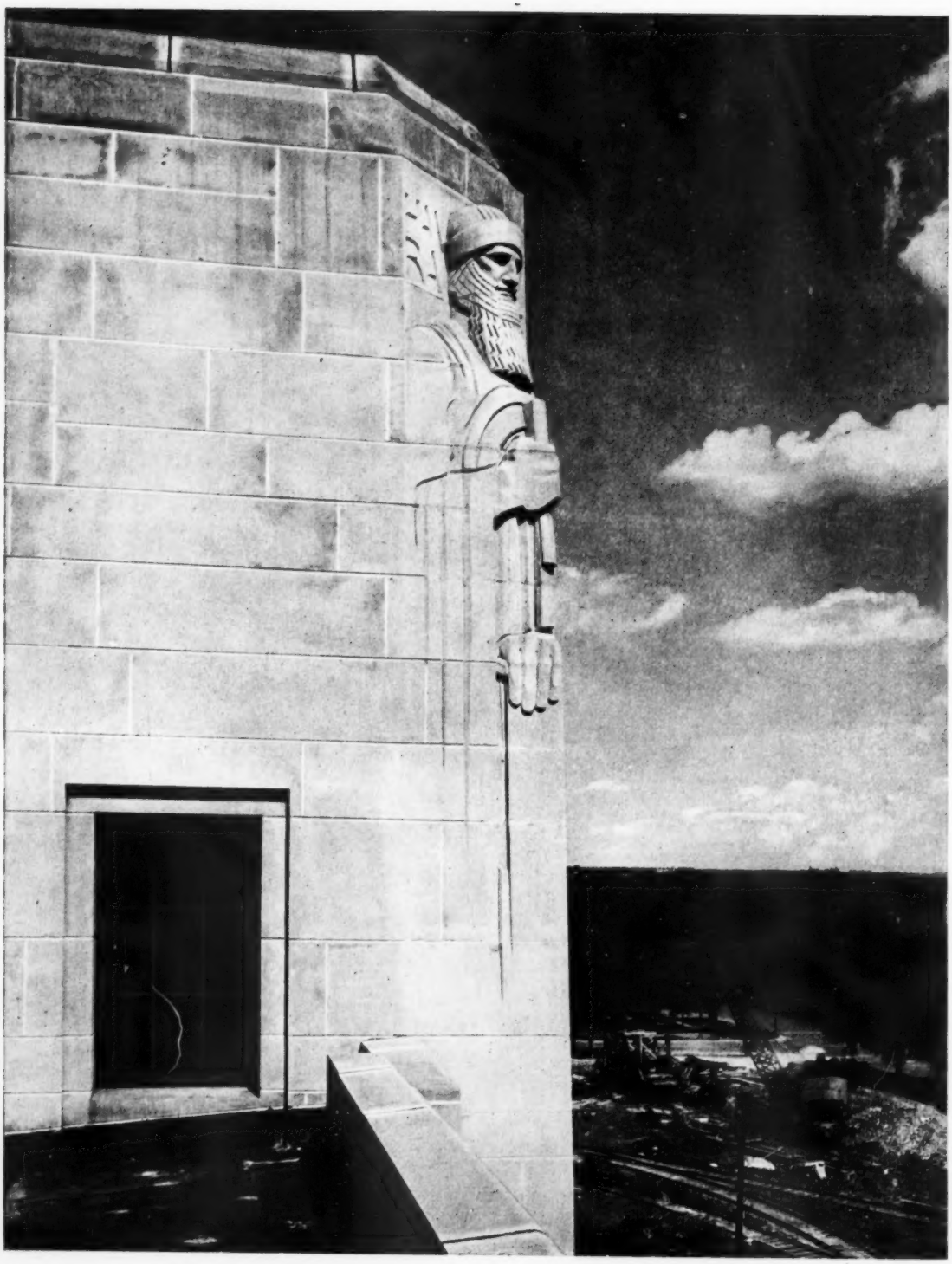
Just a word, in closing, as to the use of setbacks. We are told that the zoning laws in forcing setbacks are creating a new style of architecture. Tommy-rot! Setbacks are as old as building; antedating by thousands of years the stepped pyramids of Egypt. It takes more than setbacks to produce an architectural style. It takes brains and understanding, heart and emotional reaction, spiritual insight and high idealism, in a people as well as in the architect who would stand as spokesman for the community and the race.

Chicago, August 1, 1926 IRVING K. POND

BALUSTRADE AND STEPS—MAIN ENTRANCE

The Architectural Sculpture of the Nebraska State Capitol

The above, together with the two illustrations immediately following, are selected from THE ARCHITECTURAL SCULPTURE OF THE NEBRASKA STATE CAPITOL, by Charles Harris Whitaker and Hartley Burr Alexander, scheduled for publication by the Press of the American Institute of Architects, Inc., 20 October next.



HAMMURABI
NEBRASKA STATE CAPITOL

Balcony Panel—Draughting in the Constitution
Nebraska State Capitol

OLIVE GROVE IN ATTICA

Photographs by E. H. Lowber

Little Churches in Greece. II

KARYTAENA stands where three main highways of the Peloponnesus converge; it must always have kept a turnpike. The green and limpid Alphaeus flows below and was bridged by the Franks with six arches, which suggest what snows must fall further up in the hills, so to fill the dry, gravelly bed when they melt; above, the hill rears its steepest flank and was topped by a castle in 1254. Hugues Bruyère of Champagne and his son Geoffrey built this, and these two, with Geoffrey de Villehardouin, the grandfather, were perfect ensamples of the Latin chivalry of the Crusades. At worst, they were probably better men than we, less egoistic, less brutal, and less stupefied in sordid greed, and as such they may be honoured.

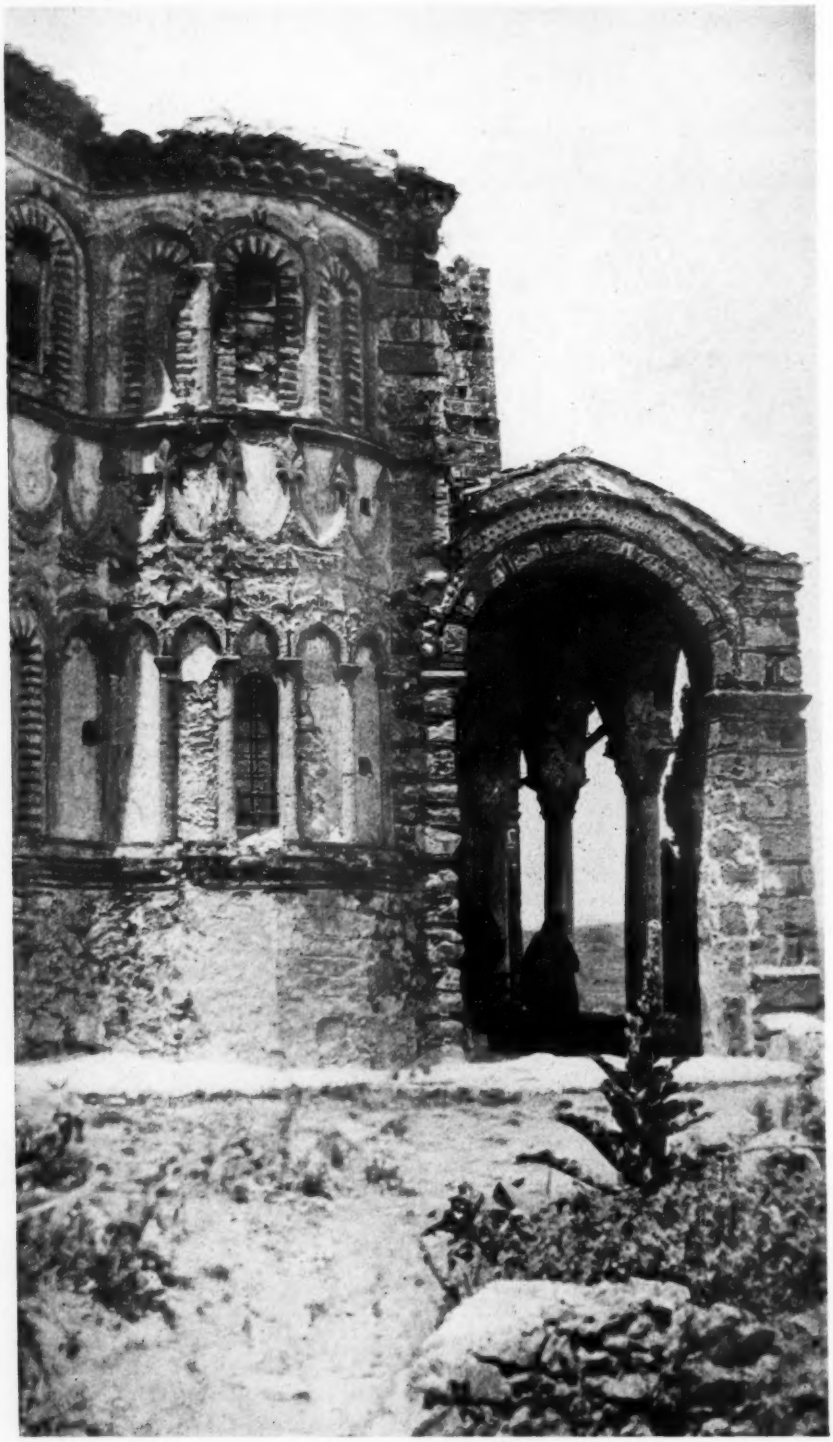
The castle bears little likeness to those the elder Geoffrey will have known in Champagne; no keep is here discoverable, nor outer and inner ward, but a long, irregular, scarped mass, towered at intervals, battlemented, well-furnished with cisterns and store-rooms hewn out of the rock, lies stretched along the hill-top to end in a sharp prow, like four sides of an elongated hexagon, much as Peñafiel lies in Castile, or Tiryns in Argos. Other walls below, curved on spurs and slopes, made once such shelters for cattle and peasantry as Procopius describes in Justinian's engineering, and defended an intricate approach with many turns and arched gateways at right angles to each other, commanded by a massive tower.

On the broader, sunnier side of the hill the village straggles along,, horizontally, as though the first streets had been sheep-tracks; the three apses of a little church front the early light, behind them a dome and then a fine square belfry, very Lombard-looking, rise from the level of ground upheld by retaining walls. Below and above, the mountain-side of rock and scrub, of sliding stone and slipping soil, is terraced for cultivation, pitifully scant even on the lowest incline where olive trees will bear, and the long road up to the castle is picked out by occasional cypresses as though it were the road to a cemetery. Elsewhere, hedges of prickly-pear border the road that mounts from the plain and the bridge, and the top of the town lies in a saddle between the castle and a lower peak. Here the houses stand dark and close in the narrow streets, opening out where a plane-tree ringed with benches accommodates a café, and closing in again between yellow-shuttered and blue-beamed dwellings and shops open-fronted, under balconies borne on timbers that serve like arcades;

THE BRIDGE BELOW MISTRA

KARYTAENA—THE CHURCH OF S. NICHOLAS

MISTRA—CONVENT OF THE BRONTOCHION



MISTRA—THE NUNS OF THE PANTANASSA

like the Rows in Chester, and the *soportales* of Estella and many another little city in Spain. In truth this architecture of stone and timber used conjointly recalls such a village as La Alberca or the ancient city of Béjar, situate in the Sierra de Gredos. In the Abruzzi, the like may perhaps be observed. It is hardly to be called even the architecture of a Mediterranean people, who have lived for three millenniums and more in their mountains; rather, that of a life surviving yet, which had held the land as the ploughman's and the wood-cutter's since before the Mediterranean race had ever come. The short, sturdy greybeards around the sycamore tree, wearing blue coat, blue leggings, and a vast white linen frill in between, were very like the Sards who have shared with me, among their stony heights, their crisp sheets of bread and soft cheese of sheep's milk; they stepped forward to indicate the way, and fell back with a courteous gesture. One is at home among these.

The church of S. Nicholas stands in its own grassy green kirkyard, right in the *col*, under the lee of a seigneural tower that looks Italian. It has a central dome, three apses, and transepts; the aisles east and west of these are roofed with low domes, and the narthex with three parallel barrel vaults that correspond, carried on two piers. The painting would stand for a complete cosmogony; Virgin and Child enthroning in the apse, the Pantocrator in the dome, scripture in the aisles; in the right transept, for instance, is found the Eternal among cherubim and encircling angels, a zodiac, the animals, the sea—this represented twice over, once by a marine deity and again, lest you should misunderstand, by a ship above him; opposite to this unrolls the fantastical realm of hell. Late work is this, perhaps contemporary with the counter-reformation, virtually untouched by the Gothic of France, the Renaissance of Italy; but subject obscurely, almost imperceptibly, to the influences which determined all the beauty of Mistra.

The ruined city of Mistra was yet peopled and organic within the memory of men now alive; but, after recurrent earthquakes, one so shook down the houses and shattered the churches that the town moved out bodily. A few care-takers live at the Metropoli and the Museum, with a dog and some chickens for company; a few nuns live at the Pantanassa, with a priest at hand, and offer a cordial of their own distilling with weary courtesy to visitors; moreover, care is spent on such few repairs as may preserve the frescoed walls from disintegration. But cut stone and timbers are prized throughout the East, and all the beams and rafters have long since been fetched to build the villages below. The same thing happens everywhere The temple of Philae is submerged, drowned like Leander, and gone. Ruins that have waited in Syria since the Arab invasion were altered between the Princeton expeditions of 1902 and 1910; the façade of Mshatta, on the desert edge, erected in the eighth century, if it had not gone to Berlin in the twentieth, would now be arcading the culverts on a new railway line; and who knows what will be the cost to archaeology of the Bagdad railway before it is completed? With the new hopes in the East, that commercial exploitation has brought, the new houses and highways a-building are taking what material lies at hand. It is a sign, mayhap, that our civilization is dying, and another age is shortly to be born; how the monuments of the past crumble while we watch; and when capitalism and industrialism, cotton and oil, have made a clean sweep, over all the earth, of all memories of old time past, only then may we build anew the City of God.

Meantime Mistra, deserted, yet lies glittering in the young sun on the outlying slopes of Taygetus, with its stored memories and legible records of all the conquerors that have passed, Frank and Byzantine, Venetian and Ottoman. The castle that was built by a Villehardouin in the winter of 1248-9 follows the contour of the spur like the Templars' castles in Palestine. One great tower commands the east and another the west, and both control a thick, gibbous mass between, of towers and bastions and walls aligned in curves now convex now concave, that turn sharp angles to secure a flanking fire, and rear up from the abrupt rock to ensure a plunging fire. These castles of Greece have usually no ditch and never water in it; they relied on the approach in long lacets and the final steep escarpment to kill off assailants before they really arrived. But in 1263 it was ceded, with others, to the "Greeks," *i. e.*, to Constantinople, where the brief Latin kingdom had ended and Michael Palæologus was ruling from his own city. Where Venetians and Turks alternately were lords thereafter, deserted palace chambers show Venetian traits in their decoration, as does the church of the Pantanassa in the arcading about the apse; and among the ruins of the mosque and the baths are tokens plain of Islam.

The uncounted churches gradually define themselves, assume an identity, a chronology. In the shadow of columned aisles, across the dazzle flooding a riven dome, may be read the story of capital and frieze, and in the fast-fading frescoes discern the remnants of antique persistence, in river-god's urn or Neptune's trident.

To the great Twin Brethren, as behooved, here above the seat of their antique worship at Sparta, under the name of Saints called Theodore, the first church was built, at some time before 1296. On the face of the dome outside, windows and niches alternate, and on the façade decorations in colour are inlaid, but

generally speaking the intention is much like that at Daphni. Here, however, the church is small and precious, while there it was lofty and serene.

The Metropoli of 1310, rebuilt in the next century, seems habitable still; that the women's galleries, with their little domes above the barrel-vaulted aisles, were an afterthought shows plain where the frescoes are cut; in the carving of their parapets and the lovely screen of the marble iconostasis occur, among plaited bands and wreathen foliage, the knot and the cross, the magic spell and the Christian symbol. The church is essentially basilican, rectangular, level-roofed, with three pairs of columns, a wide span at the transept, and clerestory windows under a timber roof; the story of the frescoes runs on and on, from apse to narthex and back under the aisles. They reveal a very ancient tradition of representation; in their choice of scenes, in their use of symbols, in their conventions of form and gesture, they go back to sources in Syria and the Holy Land, which may be traced through manuscripts and are akin to the mosaics at S. Saba in Rome, which was a Greek church itself in the eleventh century. How long the growing-time lasted in this cathedral is clear, and two sides of the cloister are Renaissance in style.

Before 1311 was built the great Brontochion, where the cross-motive takes possession of the basilican, carrying the galleries across the transepts on a column, as the cathedral-builders of Pisa and Lucca had learned to do; setting a great dome over all, and another above the narthex, with lesser ones over the angles of the aisles. Here recurs such a western belfry as Karytaena tried to emulate, with long chapels like the side aisles at Daphni, and the Athenian narthex, buttressing well the whole.

Early fourteenth-century also is the church of the Peribleptos, hollowed out at the west from the very rock of the mountain-side, while eastward the side apses, quaintly arcaded about their windows, and the mighty central cylinder, jut out above a crypt-chapel and other substructures; behind the nave-gable rises the multiple arcading of the dome, beguiling the eye on higher and further in enchantment. The interior is magical, so small, so vividly patterned over with frescoes; built between 1316 and 1350 and thereafter covered with painting toward the close of the same century. In the dome the All-Maker a-brooding; in the apse the Seat of Judgment, prepared, that awaits the closing of our age and our world; at hand, the Virgin and Child worshipped by blessed spirits. In the barrel vaulting of nave and aisles the themes are chosen for their symbolic value: the release of the spirits in prison, the descent of the Fiery Tongues, the sacrament of Melchizedek, the Transfiguration.

Here the painting is different from the cathedral and the convent just named, with a new and vivid understanding of colour. Such flame-like reds and vaporous greens, such amethystine blues and poignant yellows, arrest and detain, till it becomes apparent that the artist has worked like an impressionist, juxtaposing unlike hues to depict a single colour. The spectral splendours of Greco are here anticipated; his yellow robes with orange folds, his blue mantles with pink lights, his green wings that dip into violet and turn into turquoise. Indeed that strange and mystical manipulation of colour that he learned perhaps as a boy in Crete, which had taught it, through many wandering craftsmen, to the Venetians, so that either from the island of his nativity directly, or indirectly through the Cretan school that had flourished in Venice in the fourteenth and fifteenth centuries, our Toledan who was called El Greco and who signed himself in Greek Theotocopuli, inherited that art of his and was in truth identical with this now full flowering at Mistra in the latter fourteenth century.

The delicate church of the Evangel is more patently cruciform, with its slender shapely dome that rests on piers between the apses but on columns between the aisles, continuing these freely into a spacious narthex and opening by a south door into a tiny cloister made of two barrel vaults and one column. It must be dated towards the end of the century or even later. About 1430 falls the splendid Pantanassa, a perfect instance of the cruciform domed basilica, cross-vaulted, with monolithic columns and marble capitals, a marble string course; a deep sanctuary and rather shallow apse behind it arcaded round; galleries roofed with two domes and wide barrel vaults between them. The spandrels of the nave arcade are painted, the soffits of the arches, the portals, the galleries and their parapets, the narthex and its upper tribune, the mighty dome; every surface was of painted plaster except those marbles. Outside, the same lavish use of decoration sets arcades to run around the apse and its windows, and above the arches of the wide north loggia that flanks the nave and looks over the whole Eurotas plain, they once adorned such another portico at the west, as they still enrich the superb western campanile. These Greek belfries at their best recall nothing else but those of Calabria, itself a Grecian land, as we all know them, for instance, at Amalfi and Ravello.

In the shortening afternoon a wind moves the trees upon the hillsides and light tips the scattered cypress-tops and is withdrawn; red rock is darker and scrub is greyer; finally, long before sunset colours the sky, ruins and hillside have merged, almost indistinguishable to the vagrant glance. Everywhere stone and brick have been used together; thin tiles laid in courses between others of cut stone, or framing windows and patterning façades with a delicate outline, or set in saw-tooth up gables and around curves in a functional decoration, or laid horizontally and then radially to make a window arch, or cut into patterns

like the Cufic decorations of Moslem artizans. Here on this darkening hillside, within the compass of two centuries, men have built every sort of rectangular church, no two alike, with all the apparatus for liturgical worship. Little of the material was precious; a few marbles, a master painter from Crete. The rest is brick, stone and plaster, and largely craftsman's work. Always, however, the forms are various and ornate, the relations are subtle and novel; the strong colour of frescoed robe and background, the deep tone of stone and tile, the pure ancestral certainty of every line and contour of the draughtsman, the serene and sober beauty of space-composition, which these Greeks inherited not from Phidias or Libon, for the architects of classical antiquity knew no such art, but rather from Anthemius and Isidore that worked for Justinian a thousand years thereafter: these things have come together and constituted a romantic loveliness more akin perhaps than the antique to our own temper.

On the Island of Salamis is situate a convent called Phaneronome: if toward the day's end you land your little boat at the light-house and walk up over the burnt grass, tall monks with iron-grey beards will rise with grave courtesy from where they sit on stone benches under huge and ancient trees. (This church is shown to visitors.) Where the arch of the convent gate opens into a great court or cloister, the first consciousness is all of pale flag-stones and thick whitewash: the whole mass of conventual building arcaded round on wide pointed arches, with loggie above and inside staircases visible: two grand cypress trees coming up through the white flags.

The church itself is gabled, whitened, adorned with such long pilaster-strips as may be seen in Pavia, and, sunken in the front above, lovely plaques or hollowed discs of earthenware, in lilac and green designs, like Rhodian dishes. Some carved marble slabs are built in likewise, as at Athens and Venice. One among them shows a cross set amid interlacing lines that run out and form a plaited border, as at Mt. Athos and Armenia; and on another peacocks and griffins do stately homage to the cross; while a pair of cypresses bow before the cross upon a third, as on the tenth-century Harbaville triptych: meanwhile into the cloister staircase is built an antique fragment of Dionysos under grapes, an Ionic capital serving for a doorstep.

Within, the church is painted, every inch; and though the last repainting was done in the course of the eighteenth century, it might serve in illustration of that manual which Panselinos, in the sixteenth, drew up for the monks of Mt. Athos. Down the domes of the south aisle stretches the story of Creation, even to Noah's Flood. The Last Judgment occupies the west wall, as in the Torcello mosaic, and souls are weighed in balances held under an altar. The Virgin and Child fill the apse; elsewhere you find a garden enclosed, with a glimpse of the sea beyond, and therein move monsters, cuttlefish, ships, and a mermaid, and Neptune crowned. The Jaws of Hell gape wide, being the gullet of a prostrate monster, and in his hot breath the wretched souls dance up and down like gnats, as they are indeed described in those mediaeval Visions, Apocalyptic or Celtic, Tundall's or many another's, that culminated in that of Dante. All the centuries meet here, with our own looking on: in life, it would seem, there are no solutions of continuity, and with these same Greeks we share a common heritage. GEORGIANA GODDARD KING.

MISTRA—CHAPEL OF THE EVANGEL

SIR WILLIAM PEPPERELL (?) ORIGIN UNKNOWN *(Essex Institute)*

Some Early Colonial Firebacks

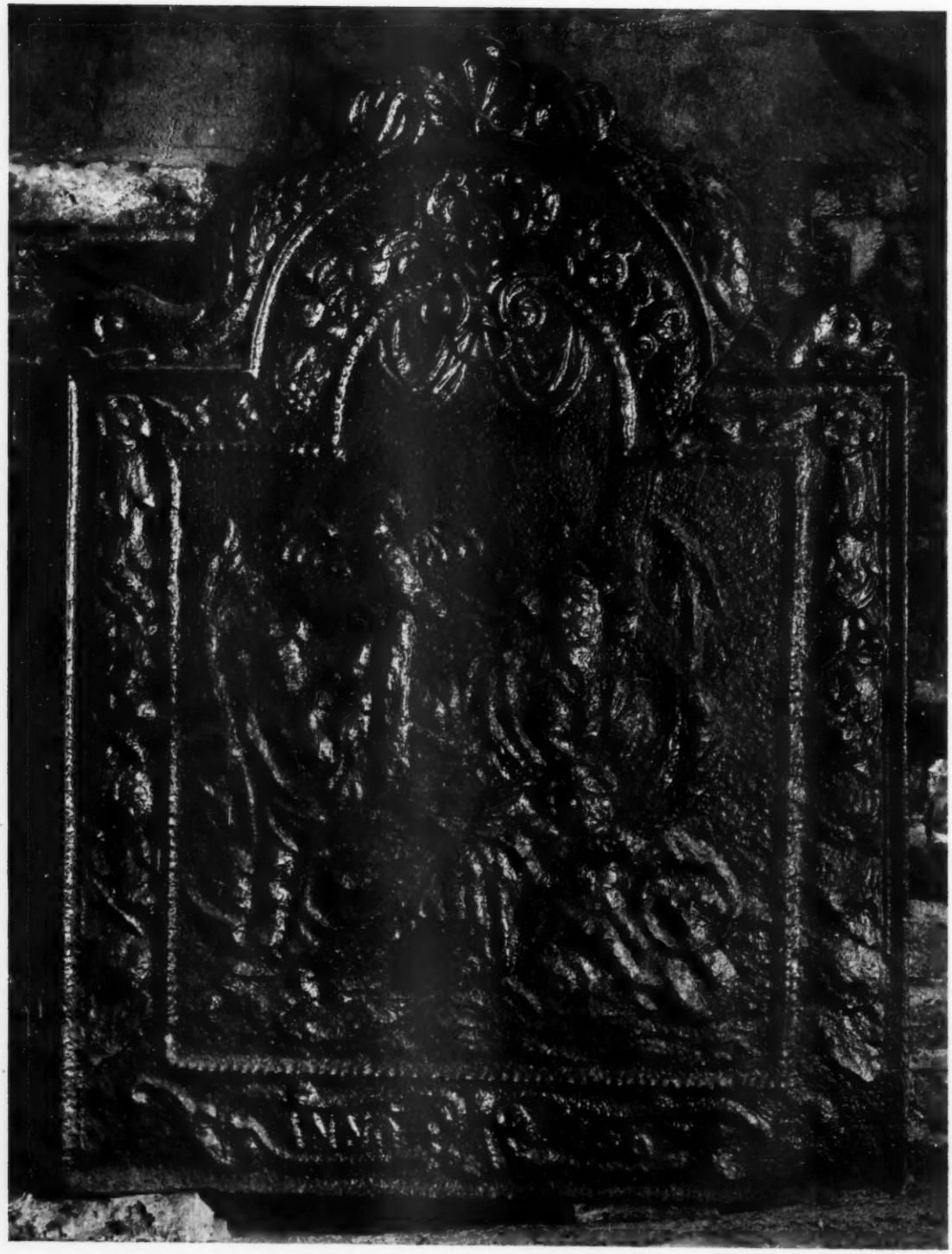
PHOTOGRAPHS COLLECTED BY E. B. ALLEN

WHEN IN ENGLAND during the Twelfth Century it became the custom to have the fireplace against the side wall instead of in the centre of the room, the attractive iron slab—or fireback—came into use. At first, rectangular and plain with simple rosettes and geometric figures, the fireback developed into a beautiful thing, curved at the top and its face ornamented with scenes from the Bible, mythology, and local incident, as well as armorial bearings and portraits of the royal family. It is noted that in France in 1793 the National Committee passed a law forbidding firebacks showing royal arms or portraits, as offensive to their ideas of equality, with the result that they were turned with their faces to the wall. To this day, in the older chateaux, one may still find the firebacks in that position.

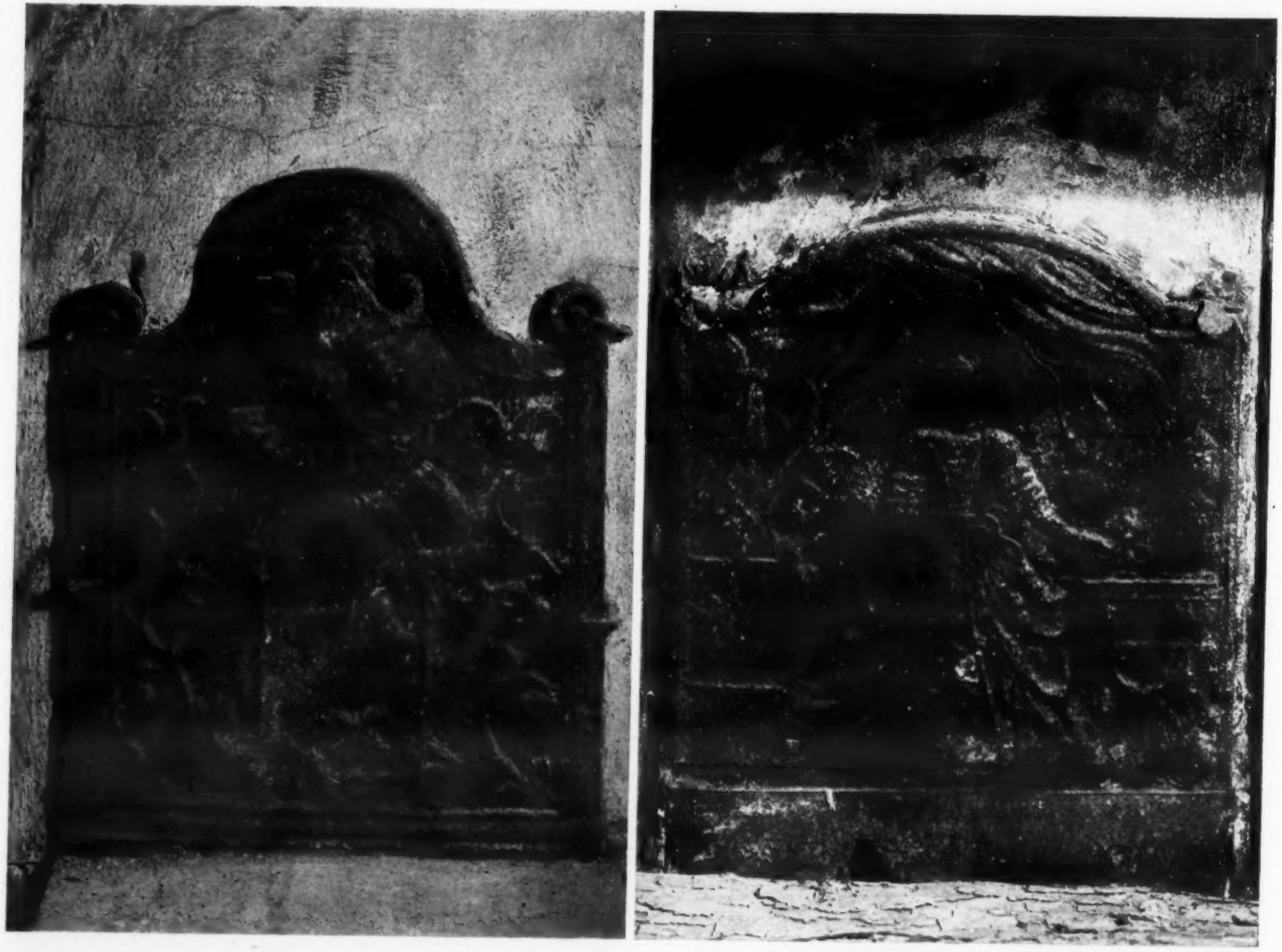
The fifteen illustrations given here are mainly of English and Dutch design and have been collected from New England and Pennsylvania. The Essex Institute at Salem, Massachusetts, has two very interesting firebacks, one the Adam and Eve design, dated 1770, showing a large tree loaded with fruit and the serpent-tempter; and another, dated 1807, with a fine pediment, dolphins and sea shells from which water is flowing, and three figures unfortunately rather damaged by long exposure to the heat of the fire. The one dated 1660 with the initials JAP (John and Alice Pickering—Salem) is said to have been made at the old iron works at Saugus, a famous foundry in the early Colonial days.

From Whitby Hall, Philadelphia, 1754

From a House at Horsham, Pennsylvania, 1728



From the Royall House, Medford, Massachusetts



From the Royall House, Medford, Massachusetts

PENNSYLVANIA DUTCH | ENGLISH | HISTORY UNKNOWN

18TH CENTURY, EASTERN PENNSYLVANIA

18TH CENTURY, EASTERN PENNSYLVANIA

From the Pickering Mansion, Salem
(*Essex Institute*)

Pharisee and Publican, German

Adam and Eve—Apparently German
(*Essex Institute*)

The Cavalier—18th Century American

CHRISTOPHE'S PALACE AT SANS SOUCI

The Palace of the Black King Christophe[1]

I.

TO LITTLE MILOT in the island of Haiti, the palace of Sans Souci is stupendous. From its point of vantage a slope somewhat higher than the village, it looks down upon rows of one-story, one-roomed houses, and, all things being comparative, it becomes to the beholder the largest palace in the world. The village is bamboo and thatch with clay walls stained with ochre or salmon or whitened with lime; the palace is of brick, covered with stucco, and trimmed with cut-stone, beautifully moulded. Room leads to room and gallery to gallery. The main building even rises to the astonishing height of three stories. If Buckingham were set upon a hillside terrace overlooking streets of cottages it would achieve a magnificence of size such as belongs to this Sans Souci.

To reach the palace I pass between the huge piers of the gateway. There are sentry-boxes to guard the entrance, but in the boxes there stand no soldiers, and the gate itself is gone. I cross a deserted unkempt courtyard to the foot of a great stairway, and there two more empty sentry-boxes permit me to pass on unchallenged. I clim to the landing where, in front of the basin of a fountain, the grand staircase divides, with again two sentries, to protect the long flights. How well was guarded the King of this palace!

Above the fountain on the landing, the great façade of the front rises in a beauty of arched panels, arched openings and engaged columns; with stepped back from the center section, the main body of the building, whose arched doorways repeat themselves in seductive repetition. Everywhere the red brick foundation is showing through, supplanting the original facing of yellow stucco, now apparent only here and there in areas of pale color gradually flaking off and year by year disappearing. The staircase mounts to the palace and to the terrace, and lovely is the line and the delicate moulding of its balustrade. Under the graceful stairway are dungeons with iron gratings, but the dungeons are empty and grass grows on the steps of the staircase.

The day is very blue and very bright, and a soft breeze sweeps the path of my ascent. Below, a young man in a short loose blue smock is running across the green courtyard, propelled by his two goats. The smock is his only garment and beneath it the gloss of his slender black legs gives back the morning sunlight. A little grey goat, bleating plaintively, walks perilously on the high balustrade of the right stairway, and above, on the royal terrace, a big black sow has brought sight-seeing her whole new litter of little ebony offspring.

Within the palace, all is desolation: its stairways have crumbled out of any possible use as stairs; its rooms are roofless and doorless and floorless. I stumble over heaps of brick and stone, broken and disintegrating. And from the *débris* emerge indignant and astonished tarantulas—great, furry, black tarantulas.

Everywhere trees and shrubs and vines have sprouted. Faded rose tints the walls of the lower rooms, along the base of which runs a broad band of deeper shade. It is possible, looking up, to see on the walls of the second story rusted nails which must once have held in place tapestries and hangings.

Ruins . . . only ruins . . . and yet of an indefinable majesty and a delicate beauty—as though they had once been the expression of some human dream.

Standing in one of the arched doors of the central façade, I look out above the village, through the embracing hills to the plain of Cape Haitian and to the distant blue line of the ocean. To the right, below, on a level with the gates, are the circular walls of the Royal Chapel, the remains of its altar, and the vacant niches from which saints long ago departed. On the left, beyond the terrace, with its solitary star-apple tree, is the right wing of the palace, almost obliterated by verdure.

I cross the terrace and sit on the brick seat which surrounds the gnarled old trunk of the tree. The apples are still green, and not yet turned that subtle pinkish purple to which Oswald Durand, the Haitian Mistral, compared the lips of his Choucoune.

It is very quiet in the palace and under the tree. Black butterflies, gold-striped, drift in a sunbeam. There is not even a gurgle of water dripping in the basin of that long-dry fountain on the stairs. It is so quiet that the bleating of the little grey goat on the balustrade and the scurrying rustle of lizards will forever startle my future memory of this palace of Sans Souci.

II.

More than a hundred years ago, a man named Harvey came on a visit to Haiti. Harvey was a thoroughly respectable person, writing himself down as of Queen's College, Cambridge. He was interested in education; he inspected schools, examined pupils, and drew conclusions. But fortunately Harvey also

[1] From "Black Haiti," Copyright 1926, by Blair Niles. Courtesy of G. P. Putnam's Sons.

Arched Windows and Doorways in Seductive Repetition

Sans Souci in Moonlight

The Pylons at the Gateway—Used as Sentry Boxes

One of Many Charming Details

Above the Fountain was a Half-Circle of Very Deep, Very Bright Blue

Arched Windows and Doorways Repeat Themselves in Endless Repetition

was curious; he had an eager open sort of mind; he made friends and he had the gift of making people talk. When he is summoned from the oblivion of a hundred years ago, he is a lively witness.

Being a white, he'd not been permitted to penetrate more than three miles into the interior; but how he'd used his eyes—and his friends! He knew all the foreigners at the Cape. Some of them had been living for years in Haiti. But they couldn't tell him what he wanted to know. He was keen to know about the palace of Sans Souci—about the Court life and the King. So he made friends among Haitians, among Christophe's officers and the members of his household.

And as I have said, Harvey understood how to make people talk.

Among those friends there was the Baron Dupuy, who occupied a high place at Court and was going constantly back and forth between the Cape and Sans Souci. He was Harvey's most valuable link with the mysterious palace. He was such an agreeable companion; a great favorite with the British residents, who often had him at their parties; altogether pleasant and courteous; an easy and spontaneous talker, ever ready to serve them. Most interesting fellow.

Harvey, within his tantalizing three-mile limit, was observant; and of course Dupuy wanted to know what the Englishman thought of everything. The King, too, would be interested. What did Harvey think of the people—the Haitian people?

He replied that they had impressed him as happy, industrious, temperate, loving liberty and Haiti. Among the upper classes he had seen ease, elegance of manner, and courtesy to all whites except the French.

Dupuy was glad. And what . . . what did Harvey think of their King?

And Harvey—who, it must be remembered, was of Queen's College, Cambridge,—Harvey had said that when watching the King review the troops, it was impossible not to regard him as a "perfect General and a distinguished hero." Harvey had said that the King spoke with such fluency and judgment, that his face was so intelligent and genial that one became almost at once unconscious of his race and his origin.

Holding such tolerant opinions, of course Harvey won the confidence and friendship of his Haitian acquaintances. They were happy that Harvey was to go home and write it all down in a book.

It was a pity that he might not see the palace.

The palace was gay and beautiful in the sun. Its stucco, which was of the clear yellow of the mesquite flower, reflected the sunlight until one would have said that the palace was of gold. Its cornices were delicately carved. Water fell splashing into the basin of a fountain on its great staircase, and above the fountain there was a half-circle of very deep, very bright blue, with on either side panels of Pompeian red. The same warm rose-red banded the balustrade, while blue, to match the half-circle above the fountain, banded the wall, following the steps of the stairway. There were set-in panels of blue between the windows, and the columns stood out white, like marble, against the yellow stucco of the walls. And all the little sentry-boxes were bright yellow and white, with night and day a uniformed soldier in each.

Approaching the palace, one would have said that it was of gold, jewelled in deep blue and rose-red. It was unfortunate that none of Harvey's friends were able to secure for him the King's permission to visit this Sans Souci.

Within, its rooms were magnificent; floors of marble or polished mahogany; paintings and great glistening mirrors; hangings of tapestry and silk; costly furniture, china and silver. No King could have had better.

On a day when the Court received, the sight was indeed gorgeous.

It was compulsory that all nobility, all civilian and military officers should attend, and invariably in the uniform of their station. They would pass through the gates and climb the grand staircase to the terrace where the Court waited.

With the King and the Queen, the Prince Royal and the Princesses, there were the members of the Royal Household. The Grand Almoner in his robes, for he was also Archbishop of Haiti; the Grand Cupbearer; the Grand Marshal of the Palace; the Marshal of His Majesty's apartments; the ten Governors of Palaces; the ten Governors of Castles; the sixteen Chamberlains; the twelve Knights and the seven Grand Huntsmen; the seven Professors of the Arts and Sciences; the Grand Master of Ceremonies with his assistants; the physicians and apothecaries, the pages and the heralds.

Even more numerous was the Military Household of this black King. Of the four Lieutenant-Generals three were Dukes, the Field-Marshals and Major-Generals had all the rank of Barons. And there were any quantity of mere Colonels, Lieutenant-Colonels and Captains.

The Queen too had her Household; her Lady of Honor, her Lady of the Presence and her Ladies of the Palace. Even the Prince Royal and the Princesses had retinues of their own. Always with the Prince was his tutor—the Baron de Vastey, who was also one of the King's Secretaries; an important person at Court, and writing books which the King had printed in his own Royal Printing Office.

Dupuy was proud. All were immensely proud of their King, and of the magnificence of his Court. Nothing, not even in Europe, they were convinced, could excel its splendor. The costumes of the ladies were imported from Paris, and what Officers ever

wore more gold lace on their coats, or heavier epaulettes, and who in their caps had more flaunting plumes? While those who were members of the Royal and Military Order of Saint Henry wore the insignia of a cross of gold enamelled in lapis lazuli, with on one side the image of St. Henry and the inscription "Henri Fondateur 1811," and on the other side a crown of laurels with a star and the words *"Prix de la valeur."*

But of course Harvey had often seen this cross and noted that it was worn according to the rank of its owner; on a black ribbon placed from right to left if worn by a superior officer; on a red ribbon passed from left to right if worn by a commandant; hanging from a bit of Haitian colored ribbon—red and black—and fastened in the buttonhole, if a chevalier were the wearer.

From this Harvey might judge how punctiliously everything was done at the Court; with what ceremonious etiquette every detail was conducted. They were all very proud that it was so. Dupuy would have loved to have his British friends see the grandeur of the spectacles as Dukes and Barons, Marshals, pages and heralds mounted the long staircase under the blue sky, with, all white and gold in the sun, the palace, inset with panels of blue and panels of Pompeian red!

III.

It was August and it was 1820 when the King went to mass in the old church at Limonade. And of what happened there legend has it that, kneeling on his *prie-dieu* Christophe saw, standing before the altar and officiating at the mass, the ghost of the priest, Corneille Brelle, who had some days before been executed at the Royal command. Seeing the ghost, says legend, the King's head fell heavily forward upon the *prie-dieu* and blood flowed from his forehead. And the peasant wireless relayed the news—by drum and by conch-shell, from valley to valley and mountain to mountain.

The ghost is legend but the King stricken by paralysis as he kneeled at mass is history. A thing had happened upon which the King had failed to calculate. Fear of the French had gradually grown less acute. Christophe had begun to put on fat; he was drinking more—drinking of rum and of that insidiously intoxicating beverage which is called power. And they are drinks which should never be mixed. They were disastrously heady stuff for a man whose early years had been passed under the restraint of slavery and whose late life had been held in check by stern military necessity. As Christophe drank more and more deeply of power and of rum the outline of his dream became less clear; and his discipline became tyrannical; he yielded to fits of passion which were the seeds of those legends which were to celebrate his cruelty. The numbers of his enemies increased. Such men as Richard, Duke of Marmelade, did not relish being beaten with a stick, and Christophe had forgotten the serpent of color prejudice, lost sight of the fact that Haiti, which cries out against color discriminations, has always nourished its own private representative of the species. For never had there been any real unity of black and mulatto. Only in the face of French persecution and French menace had they temporarily consolidated. The blacks had always realized that in their fusing would lie Haiti's strength. Dessalines' constitution had declared that all citizens of Haiti were to be known as blacks, whatever the shade of their color, and he had been anxious to set the example of amalgamation by marrying his black daughter to the mulatto general, Pêtion. But this doctrine had never been accepted by the man of color, and throughout history the antagonism between black and half-breed was continually to raise its ugly head.

In the reign of Christophe those rabid mulattoes who did not fancy equality with the pure blooded negro made the most of the King's faults. But until that day in the church at Limonade, Christophe had scorned his enemies. Then he realized that, unless he could preserve at least a semblance of strength, the game was up for him. He had himself rubbed with rum and red pepper in an effort to restore life to dead limbs. He improved sufficiently to be taken to Sans Souci: but he must be able to mount; if he could but appear once more on horseback before his army! There is a tradition that he made one final supreme effort, that his foot found the stirrup, his hands the reins, that summoning all his force he attempted to throw himself into the saddle. But the strength was inadequate, for Christophe had fattened with the years of ease. He fell—he, the King, fell prone upon his face in the presence of his army. The game was up. It is said that he then had himself placed on his throne under the star-apple tree where he had so often settled the fate of men. Seated there he had called up his old air of majesty. "Let the troops file before me," he had commanded. And the men had passed, swearing as they passed, fidelity to the death. . . .

Christophe had had nearly two months in which to think. From August to October thoughts had marched in procession through his brain. The death in his limbs had cruelly failed to numb his brain. He could sit on the terrace of Sans Souci looking upon the palace which had incarnated his dream, and he could think. Indeed it was impossible to rest from thinking. He saw with what imperceptible cunning the lines of his Fate had drawn closer, little by little closer, until they had chained him to his chair on the terrace.

The punctilious Court ceremonial must slowly have relaxed, now that the King could no longer move through the rôle; now that something other than majesty was filling his soul. For a new fear had come to the King, beside which the slaves's fear of the French return was no more than a nightmare, dispelled by waking to find the bay peacefully empty in the morning sun. While the new fear which haunted Christophe was but the more vivid, the more credible in the waking hours. It could not be reasoned away and constantly fresh evidence of its reality was accumulating. The lines were tighter about the chair on the terrace, until the King knew beyond doubt or hope what it was that he must do, while there was yet time, before . . . before his hands too were caught in that lifeless grip where they refused to obey the commands of the brain. He who had despised the weakness of Napoleon in his captivity, he—Christophe—would die a King. But what if he waited too long? What if his hands were to refuse? Still the sun was sweet and a wife and daughters, whom he had made Royal, hovered about his chair. And there were even nobles who remained true and devoted. There were Dupuy and Belair . . . both good fellows. Others too . . . but the lines of Fate—so close that the good fellows could not save him.

Early in October his town of Saint Marc went over to the Republic of the south, and four days later, Richard, Governor of the Cape, he whom it was said the King had beaten with a stick, he also deserted.

His own troops—his Royal Dahomeys—had gone to the defence, but scarcely had they gone when heralds were heard crying the news that with shouts of "Long live Liberty" his picked troops had joined the insurrection. All along in the interminable weeks which had made up the span of August and of September he had known that the game was up. Now the time was a matter, not of hours, but of moments, if he was to be King to the end.

The Citadel? He had of course often in the past weeks thought of the Citadel: but even could they drag him alive to its height, what then? If his Royal Dahomeys had deserted who was there to defend the Citadel? And after all, at any moment the thing which held his legs in its remorseless grip might grasp also his hands or cloud the clear supremacy of his will.

A Haitian historian says that the King summoned to his chamber the Queen and the Prince Royal and the Princesses; that he tenderly caressed them, and that, dismissing them, he had himself bathed and dressed in white . . . all this though there remained to him only minutes. The King then announced he would be alone.

Alone he pulled the trigger. And all in the palace understood. All knew that Christophe had died a King.

IV.

A Colonel on duty in the palace at the time has said that a servant with his eye to the key-hole of the King's chamber saw Christophe pull that fateful trigger. And there is a legend that the bullets which the King carried in his revolver were of silver.

BLAIR NILES

A Roman Substitute for Window Glass

THE PROBLEM of what the Romans used for closing the window openings of their buildings cannot but occur to anyone interested in their mode of life. It is true, of course, that they lived to a large extent in the open air and did not feel the need of protecting public buildings, which were made largely of stone, from the effects of rain blown in through the window openings; and that in private houses either wooden shutters or heavy curtains were sufficient to keep out cold at night or in time of storm, regardless of the obstruction to light and air, just as today in Italy the windows of many of the poorer houses have no means of closure except wooden shutters. Still it does seem that in the comparative comfort of life in imperial Rome the more luxurious would have sought some means of keeping their dwellings not only dry, but also as light as possible on stormy days.

That the ancients were skilled in the manufacture of glass is well attested by glass vessels found in all parts of the Roman world. It is, however, more difficult to make flat sheets of glass than blown vases, although we do know that sheets of glass were produced as early as the reign of Caligula.[1] Plates of glass have been found in fragments at Pompeii, as well as a few *in situ,* filling small openings about ten inches wide. Many fragments are found also on Roman sites in Germany and in England [2], where the colder northern climate would have required closed rooms to a greater extent than in Italy. In these countries however the glass dates at least from the time of Hadrian, and in some instances is as late as the third and fourth centuries. This glass is greenish and somewhat thicker than our modern plate glass, and the largest plates found measure no more than fifteen inches at their

[1] Kisa, *Das Glas in Altertum,* p. 362.
[2] There are numerous examples in the museums, especially at Saalburg in Germany and at the Guildhall Museum in London.

greatest dimension. These comparatively small pieces would however have been well adapted to filling the tracery of elaborate window screens, which in all probability were used by the Romans in their public buildings, for they are found in the earlier churches, which follow the general plan of buildings existing in the Roman world at the time when it adopted Christianity. There are instances of the use of translucent marble in the window tracery of several of the older existing church edifices, as that of the Trappists at Tre Fontane near Rome [3] and those of Ravenna.

No actual vestiges of window frames of any kind are noted in the remains of the villas of the Campagna. I examined the window openings in the villa of the Gordians on the Via Prænestina[4] and the villa known as Sette Bassi on the Via Latina[5] for such evidence. It is however possible that the window frames were of wood fitting into the stucco with which the still existing brick walls were originally covered, and that consequently all traces of them disappeared when the stucco crumbled away. It may be noted incidentally that there is likewise no evidence of sockets or hinges for wooden shutters, which might have been the means of closing the windows.

Pliny the Younger, in describing his Laurentan villa[6], mentions the fact that the colonnade (*porticus*) within the house is particularly agreeable since it is protected by *specularis* and thus sheltered. A study of the occurrences of this word in the Latin authors shows that this substance, the *lapis specularis,* was used to some degree by the Romans in place of glass.

The substance was first employed to any extent early in the first century of our era, if we are to believe Seneca, who refers to it as a recent invention[7]. We might have been led to infer this also from the fact that he mentions it in three other passages, once as a means of admitting light[8], once as an example of a luxury ministering to comfort[9]; and again in describing the simple bathing arrangements in the house of the great Scipio, he notes the absence of windows of *specularis*[10]. Would his reader have remarked mentally that it was unknown in Scipio's day?

Seneca's contemporary, Columella, writing on agriculture, advises the use of *specularis* in frames employed in the growing of cucumbers, which require sunlight as well as protection from cold.[11] The same use for the substance is cited by Pliny the Elder in his discussion of cucumbers.[12] He says moreover that the Emperor Tiberius employed the *specularis* in this way because of his fondness for the vegetable. In another passage Pliny mentions Spain as the source of supply of the stone[13]. Now as Columella was a Spaniard by birth, perhaps the use of hothouse frames was familiar to him from his native country, and possibly the *lapis specularis* was first employed by the Romans in this way. The reign of Tiberius falls well within the time of Seneca, and though one would not wish to declare that the royal hothouse was the first instance of the use of *specularis* in Italy, these statements seem to point in general to a rather definite period for its introduction to the Romans.

In discussing the stone itself among other fissile minerals, Pliny tells us that its chief source was in the vicinity of Segobria in Spain.[14] The site of this town is questioned but authorities tend to place it at modern Segorbe, which, situated in the limestone area, has among its notable objects a spring, which is described as having petrifying flowers. The ancient naturalist, in the same passage, mentions the occurrence of *lapis specularis* in North Africa and near Bologna in Italy. He cites as a second use of the substance the fact that scrapings of it were scattered over the structure of the Circus on a festival to add a glitter to the surfaces.

Petronius, a contemporary of Pliny, in describing the banquet at the house of the *nouveau riche* Trimalchio, has his hero comment on the fact that at the end of the second course, together with the usual perfume, powdered *lapis specularis* was thrown about, a practice which he had never seen before[15]. These two references would seem to indicate that *lapis specularis* had been used in this way at some elaborate entertainments in the reign of Nero, and had rather impressed people.

The next generation seems to take *lapis specularis* as a matter of course. Pliny the Younger refers to it, as has already been remarked. Juvenal talks of a sedan chair with windows of it,[16], and Martial mentions the use of frames of *specularis* to protect trees[17]. The substance is again referred to as admitting light in the works of ecclesiastical writers[18], where the eyes are compared to the windows of the soul, admitting images somewhat imperfectly, as windows of *specularis.* I am inclined to think, however, that Tertullian's *corneum specular* is a window of thin plates of horn[19]. Palladius, writing in the fourth century, advises the use of *specularis* in frames to protect rooms where oil is stored.[20]

The Greek word κατοπτρικός, which corresponds to the Latin *specularis* in its original sense of relating to a mirror, is not applied to any kind of stone by Greek writers of the Roman period. It may be that these writers had no occasion to mention the substance,

[3] Built in 626 A. D. under Honorius I.
[4] Dates from the middle of the third century.
[5] Dates from the early fourth century.
[6] *Epistles,* 2.17.4.
[7] *Epistles,* 90.25
[8] *De Providentiol,* 4. 9.
[9] *Quæstiones Naturales,* 4.13.7.
[10] *Epistles,* 86.11.
[11] *De Re Rustica,* 11.3.52.
[12] *Historia Naturalis,* 19.23.5.
[13] *Hist. Nat.,* 36.22.45.
[14] Loc. cit.
[15] *Satyricon,* 68.
[16] *Satires,* 4.20.21.
[17] *Epigrams,* 8.14.3.
[18] E. G. Lactantius. *De Opificio Dei,* 8 med.; later (6th cent.) Venantius, 4 *Vita S. Mart.* 505.
[19] *De Anima,* 53 med.
[20] *De Re Rustica,* 1.20.1.

or possibly its use was confined largely to Italy and the West and so was unfamiliar to the dwellers in the East.

From the description of Pliny the Elder the *lapis specularis* has been identified with the mineral selenite. The name selenite itself however is used by late Greek and Latin writers of the moonstone, as its derivation implies.[21] The substance now known as selenite is a metamorphic form of calcium carbonate. It occurs in masses of varying size in limestone quarries. It is fissile, splitting easily into thin translucent plates of high iridescence. It is generally discarded as worthless in the quarries where it is found.

The only hitherto known example of selenite as a window glazing was found during the recent restoration of the church of Santa Sabina on the Aventine at Rome. The material had been used to fill in the tracery of the window screens, which were executed in the ninth-century rebuilding of the church under Paschal I, and were bricked up when Sixtus V adapted the building to the taste of his own day in the Counter Reformation. Professor Antonio Muñoz, who has restored the church to its ninth-century form, finding a supply of selenite in quarries near Ravenna, where it was being abandoned as useless, employed it for the purpose to which it had been originally put.[22]

The stone is easily split into plates, and the cost of preparing an amount sufficient for each of the windows, which measure roughly 3 x 5 feet, was 12 lire, or about 60 cents, at the time when the work was done. A like amount of glass would have cost 900 lire, or 45 dollars per window. This would seem to point to one reason for the extensive use of the *lapis specularis* in Roman times, when glass was a comparatively expensive commodity and the labor required for splitting stone was even cheaper than at present.

I conclude therefore that the *lapis specularis* was introduced at Rome as a means of window glazing early in the Empire and continued to be used to some extent, in Italy at least, as late as the ninth century. Its use ceased either because of the exhaustion of the most productive quarries or because of the increasing difficulty of transportation, just as marble for building was no longer transported to Italy after the incoming of the barbarians.

There arises the question why there are no fragments of the *lapis specularis* recorded as found on the sites of Roman villas. Pliny maintains that the stone was not injured by the weather.[23] Although this may have been true when the edges of the stone were covered by frames, it probably crumbled to minute particles when exposed to the elements for centuries in heaps of rubbish. The fragments in the casements of Santa Sabina appear to have been exposed as window glass for more than six hundred years, but they were subsequently protected by the bricks with which the original apertures were closed; and, after all, six hundred years is much less than half of the time which separates us from the heyday of Roman glory.

ERNESTINE F. LEON.

[21] E. G. Solinus (3rd cent.), *Collectanea*, 37.31; Augustinus (6th cent.), *De Civitate Dei*, 21.5; Isidorus (7th Century), *Origines*, 16.4.6.

[22] Muñoz, *La Basilica di Santa Sabina* (Milan, 1919), pp. 29, 30.

[23] *Hist. Nat.*, 36.22.45.

The Test of Skyscraper Utility[1]

THAT IN THE skyscraper architects are afforded the greatest opportunity for the expression of their talents is the view of an eminent Chicago architect, who pictured the skyscraper as a development which had rescued architecture from a century-old slump. With its introduction vertical lines assumed a new importance. Imaginations were stirred with the result that the skylines of cities soared to new heights.

While the skyscraper satisfies the aesthetic and artistic sensibilities of the architect, it likewise satisfies the economic sensibilities of the building owner or manager. The skyscraper is highly efficient. It has increased manyfold the utility of business district property by providing a means of concentration of business in relatively small areas, which has been a contributing factor in the development and expansion of modern business. Land values increased, but so did taxes and operating costs. Because of the increased valuation of the land in business districts, skyscrapers became a necessity and because of the increased taxes and operating costs, efficiency in office buildings is indispensable.

A study of the increasing trend of taxes, labor and other costs of operation indicates that the balance between expenses and the gross rental income will year by year become closer and closer, with only those buildings capable of most efficient management paying a profit. In this struggle to achieve maximum efficiency, both the architect and the building manager are concerned. Each has a specialized knowledge that can contribute to the success of the skyscraper type of office building. Viewing the matter as one outside of the profession of architecture, the architect is concerned with three problems—stability, beauty, utility. No building, however, beautiful, would

[1] This article is published at the request of the National Association of Building Owners and Managers, and was prepared by Mr. Earle Shultz, Chairman of the Building Planning Council of the Association.

be worthy of the time, labor and expense in its construction if it were not structurally sound. No building, though it be beautiful and structurally sound, is economically justified unless it serves the purpose for which it was constructed.

In the consideration of the utility of the building one must ask: Is the purpose for which the building is being constructed fulfilled? Is there wastage of space? Is the space rentable? Can adequate service be rendered the tenancy? Can the building be operated at a cost which will leave a margin of profit for the owner? Will the building come into a depressed market? What shall its rental policies be? Until recently there was no way of finding the answers to those questions without much time, effort and expenditure on the part of the architect.

Buildings in other cities were visited, their managers were quizzed and every possible suggestion for cutting operating costs eagerly grasped. Even after thousands of dollars and valuable weeks had been spent in such researches, many a doubt has assailed the architect as to whether he had consulted the best advisers; whether other buildings with fancy equipment were actually being operated at a profit. It often resulted in a cut and dry method of construction, which meant that experience became the teacher, but the tuition was being paid by the building owner. In any event, no matter how conscientious or capable the advisers, they were inevitably discussing their own buildings and not the prospective building. They were reciting their experiences in operating their own properties and were seldom, if ever, applying those experiences to the problems confronting the architect.

That was the situation until three years ago when the National Association of Building Owners and Managers established the Building Planning Service. In no sense does the service assume any of the functions of the architect. It places at his disposal the analytical ability of experienced operators, who measure blueprints and floor plans in terms of operating methods and rental procedure, applied specifically to the building in question and not a mass of generalities pertaining to buildings of other dimensions, in other cities and in other rental locations. Thus, the architect comes into possession of a viewpoint of information obtainable only through actual work in the profession of building management.

The procedure followed in each assignment is briefly as follows: A Building Planning Council composed of Past Presidents of the National Association is in general charge of the Service. The client communicates with the Executive Office of the Association in Chicago, specifying the type of building, its location, size and height, class of prospective tenancy and special requirements. This information is essential to the selection of a personnel which will bring into the committee meeting experience which will be especially valuable in the consideration of the plans of the proposed structure. In addition to the local men selected, two to four men from other cities are selected. Each of the committee members is sent a set of tentative plans together with information of local conditions and any other data the client may deem pertinent. This material is sent to each committee member a week or ten days before the date of the meeting, thus enabling the out-of-town building managers to come into the conference with an analysis of the plans made independently and without the influence of local restrictions and customs. The local aspects of the problems are generally taken care of by the local men in the conference.

A Chairman, who follows a definite procedure in the analysis of the building plans, directs the meetings. During the sessions, which generally last two full days, practically every item in the building is covered, with the following subjects given as an indication of the procedure:

(1) Analysis of location and type of building to be constructed for maximum economical development of the lot in question.
(2) Structure, in general—entrance location, et cetera.
(3) Ground floor plan, store or bank spaces, rentability, et cetera.
(4) Typical floor plan, elevator, corridor and toilet facilities.
(5) Basement plan, building requirements, uses, et cetera.
(6) Typical office layout, size of units, flexibility, arrangement.
(7) Elevator and service facilities—location, arrangement, operation.
(8) Power plant and heating problems.
(9) Lighting and wiring.
(10) Plumbing and fire protection.
(11) Hardware, interior finish and decorating.
(12) Operating organization, including building shops, cleaning and maintenance, et cetera.
(13) Rental and advertising policies.

A verbatim stenographic report of the meetings is kept, so that the benefits of the Building Planning Service's recommendations are made available not only during the planning phase of the building, but also during the construction and renting periods.

During the past three years the Service has been utilized by owners and architects of more than thirty commercial buildings in cities from coast to coast, with results which have invariably been greatly to the satisfaction of not only the owner, but the architect as well. A typical example of the value of a mutual exchange of ideas and the submission of suggestions affecting rental policies, rentability of space, the economical operation of buildings and the financial procedure is contained in the statement of Edgar L. Kirby of Starrett and Van Vleck, who designed the new Real Estate Board Building in New York City, as follows:

"As a member of the firm of Starrett & Van Vleck, Architects for the new Real Estate Board Building in New York City, I had the very pleasant experience of sitting in, together with Mr. Van Vleck, at the sessions of the Building Planning Service of the National Association of Building Owners and Managers, which took place in New York City.

"When informed by our clients that the Services of the National Association had been engaged, it was not without misgivings that we prepared the required data and forwarded it to the members of the Committee who were to serve in this instance. We, as architects, had had wide experience in the design and construction of office buildings, and could not see just how the Building Planning Service might be of benefit. Moreover, the owners were experienced realty men and building managers,

and had very definite ideas as to their requirements.

"Our misgivings were unwarranted, however, and for the benefit of architects and others who may have similar qualms regarding the Building Planning Service, I may say that there was no desire on the part of the committee to encroach upon the provinces of the architects, engineers or building managers; nor did the Committee attempt to criticize architectural detail, forms of construction or such other technical matters. The atmosphere created by the committee was one of good will and accord, and the architects found themselves many times asking questions with a sincere desire of obtaining the opinions of men of large experience.

"The gentlemen composing the committee were men of high standing and responsibility in their various cities, specially selected by the National Association as being best qualified to serve on this particular project; and the services of such a group of men would have been unavailable except through the Building Planning Service.

"The data which was prepared and forwarded to the members of the committee included preliminary drawings and specifications, surveys and photographs of the site, a plot plan of the district, diagrams of the adjacent buildings, cost and rental data and such other information as would enable the committee to analyze and make constructive criticism of the project.

"The sessions of the committee, lasting two days, were held in New York in a specially selected office from the windows of which could be seen the site of the proposed building.

"In addition to the discussions and recommendations pertaining to the location, financing, maintenance and such other things, many very interesting and instructive discussions took place regarding the layout, materials and equipment of the building, and much valuable data and information was acquired in this way.

"Among the items that were discussed were the permanency of light and air and the probable effect that would be brought about by changes in adjacent properties; the most efficient height for the building from an investment standpoint; the most desirable size and ceiling height for the typical renting unit; the location and adequacy of the utilities; and the size, number and speed of the elevators required properly to serve the rentable areas. Comparative data was introduced and analyzed as to the use of steam service from street as against the installation of a boiler plant; the use of brass piping as against galvanized iron piping; wood finished elevator cabs as against steel or bronze cabs; baked or enamel finish for metal trim and doors as against finish applied at the building; and revolving doors as against vestibule doors.

"An interesting discussion took place regarding the amount of wattage per square foot that should be provided for light and power, during which it was brought out that the requirements had greatly increased in recent years and that many buildings were underwired.

"Many other constructive ideas were advanced, quite a few of which were later adopted by the building committee and the architects and incorporated in the plans and specifications of the building.

"There are those better qualified than myself to speak upon the value of recommendations that were made respecting financial matters; but I can justly say that the mutual exchange of ideas on the planning, construction and equipment of the building were beneficial to the architects, and that a better building was secured through the Building Planning Service of the National Association of Building Owners and Managers."

Another architect to place his stamp of approval on the work of the Building Planning Service was Albert Kahn:

"I want you gentlemen to know that this has been a most pleasant revelation to me," said Mr. Kahn to the committee members at the conclusion of the study given the plans for the Maccabees Building. "I have always believed in co-operative work, but I have never seen a body of men who were so willing to express themselves freely and frankly and to be helpful as this group of men right here. I want to thank your National Association for making it possible for us to gain information from men who have had actual experience in the operation of buildings.

"If architects generally only knew a little more about the help they might gain from a meeting of this kind in their problems regarding office buildings, I am very certain they would more generally ask for this Service. I want to add my word of commendation just as strongly as I know how."

The experiences of Mr. Kirby and Mr. Kahn show that the approach of the building managers is not critical, but rather in a spirit of cooperation in order that those vexing questions mentioned above may be settled to the satisfaction of the owner and architect. Stability and beauty do not have the uncertainty that characterizes the problem of utility, which is composed of four major factors:

(1) Production of the greatest amount of high grade rentable area.
(2) The most economical layout for low operating costs.
(3) The maximum net return over the entire life of the building.
(4) The low unit investment cost.

In the test of utility, the architect now has at his disposal a new and more exact instrument—the experience of experts in the profession of building management. Through the blending of the specialized knowledge of the architect and the building manager the skyscraper will not suffer extinction through inability to bring a satisfactory return but will instead reach the goal of maximum efficiency.

EARLE SHULTZ.

London Letter

This session, for the first time since the War, the Royal Institute has been deprived by a general strike of the pleasure of presenting the highest honour in the gift of the profession, the Royal Gold Medal, which is awarded by His Majesty the King on the recommendation of the President and Council of the R.I.B.A.

The recipient of the Medal is to be Professor Ragnar Ostberg, known to all Architects and many laymen as the Architect of the Stockholm Town Hall, and it is safe to say that no more popular choice could have been made; for though the Town Hall is far from representative of the younger movement in Swedish Architecture, it is recognized as a masterpiece of its kind even by those who deplore its suggestion of romance and the flavour of Venice blended with the Swedish tradition of mediaevalism.

Ostberg, however, is one of those designers who tackle each building as a particular problem and as requiring an individual expression of its function. In the Town Hall he has summed up Swedish history and suggested at the same time the home of civic government in a capital which has thriven on a waterside commerce, but in many of his

other buildings, such as the Patent Office and the High School, both in Stockholm, and in his charming private residences, the manner of his design varies as completely as do the settings and the purpose of his buildings. In this flexibility, and in his obvious confidence to handle each specific problem, he has shown himself to be a true Architect, equal to the younger generation in the handling of a modern "classic" and superior to most of his contemporaries in imaginative composition combined with delicate fantasy in detail. Ostberg will perhaps come to England to receive his honour later in the year, and will be in the happy position of being able to voice his thanks in English; but in the meantime, deprived of its grander function, the Institute has had to fall back upon a garden party and an evening soirée to round off its social activities for the year.

Both these little dissipations were held in the Royal Botanical Gardens in the inner ring of Regents Park, and the garden party revealed, as these things do, those amongst the brethren who are in real need of a visit to their tailor. On previous occasions the garden party has been held, not in the Botanical, but in the *Zoological* gardens; unfortunately, however, there was some ill-feeling caused by an artist who illustrated a report of the gathering for one of the Journals by drawing attention to certain similarities between the normal inhabitants of the gardens and the guests of the moment. By selecting a Botanical venue this year the members of the Institute only risked comparison with harmless flora and exotic shrubs.

* * *

There must have been a slight flutter amongst the architects who style themselves "industrial experts" when the rumour spread that the site of the Wembly Exhibition was going to be sold to the General Motors Corporation for conversion into a huge factory for the mass production of motor cars on a scale hitherto unattempted in this country.

The Exhibition site was originally sold for £300,000 to a syndicate headed by a Mr. James White, whose name has figured prominently in some of the biggest London real estate transactions in recent years, and who is supposed to have negotiated a re-sale to the American Corporation represented by J. N. Willys, of the Willys-Overland Crossley, Ltd. If the scheme goes through it is expected that the two biggest buildings, the Halls of Industries and Engineering, will be turned into the actual factory, and that all the other buildings, including the Amusement Park, will make way for the houses of a miniature industrial town. No decision has been come to with regard to the Stadium, which, being too vast for ordinary spectacles and too small for a Cup Tie, has been well placed for the prize for expensive white elephants.

* * *

Fired by a desire to record impressions of a country which can produce a business corporation bold enough to buy up the Wembly Exhibition, the writer of this letter suddenly decided to ask permission of the Editor of the "Journal" to interrupt at this stage the flow of London gossip, and, hastening over to New York, complete his bi-monthly contribution by a few remarks on New York Architecture as it strikes the English mind. If these remarks appear somewhat dry, it must be remembered that the stranger living in a New York hotel soon discovers that charity is only dispensed in liberal quantities in the home. And the home is not always handy.

First acquaintance with New York impresses one with the great truth that in life it is the little things that matter, and that in a battle between the beauty of a zoned silhouette and the noise of a truck whistle, it is the noise which wins. The peace of mind necessary to the appreciation of mighty feats of building is denied, and amid the bangs, the whistles and the roars, one's architectural impressions whirl in a perpetual jazz which only breaks into a slow waltz in the comparative quietude of a Sunday afternoon. Instead of falling in with the semi-mystical mood of a Ferris rendering, one finds oneself treading warily over parked gum, or wondering why gentlemen indoors traveling vertically remove their hats, while gentlemen traveling horizontally retain them on their heads. One should write New York notes in the seclusion of the return journey stateroom, not on the fourteenth story of a hotel which can supply by telephone every human need, except two, the other one being mental repose. Having begun with a criticism, we may as well pass rapidly to appreciation, which is difficult, for in New York architecture there is so much to admire and selection is not easy.

To an Englishman, the general high level of design, particularly in mass composition and grouping, at once creates a standard, and any building which falls below that standard becomes a poor building, though in London it might pass as a very considerable achievement. The quality of the actual building, the materials and the finish, surpass English work, and there is a far greater quantity of expensive material used than is the case in parallel types in London. In addition, the equipment is infinitely more complete, and better thought out, while all fitments that are standard are well designed and practically studied. The high level of standardized details is very noticeable, particularly in metal work and trim, and in no detail does one find oneself confronted with any element of bad taste. From the standpoint of freshness of design, however, this standardization gives to the equipment of buildings a certain sameness, and it strikes one that architects are too pressed to consider the design of their own details and are obliged to fall back on the draughtsmen and the book.

At present, quantity production forces detail to a level of unexciting competence, while in Europe generally an individual craft influence permeates the detail of these designers who have actually something to say in design. Europe, however, will probably have to come to the acceptance of the stock pattern, and it remains to be seen whether the Englishman's joy in his little individual touches can be maintained under pressure.

One sees too clearly in many New York façades the reminiscence of Italy or Spain, but the example is nearly always well selected and admirably adapted. One feels, however, a far deeper stirring of the pulse in the presence of some building that is completely organic in design and expression, as for instance in the Telephone Building of McKenzie, Voorhees & Gmelin. Here is architecture of magnificent vitality and power, handled with nobility

and restraint, with detail sparing in quantity, perfectly adapted to its position, and intrinsically interesting. One forgets to quote Romanesque or the Orient, it is all so part and parcel of the structural whole.

No building is the best, but the Telephone Building stands in the first rank, while Raymond Hood's Radiator Building is another example of vigorous modernism. It seems to be designed and built with enthusiasm, and imparts a goodly portion of its zest to the jaded sight-seer.

The Ritz Tower has a splendid setting, and Park Avenue can be grateful to it for the magnificent isolated accent which it gives to this street of wealth. The Tower has a suggestion of the fairy castle in its slender elegance; its summit is a reminder of earthly difficulties.

More even than the design of these dramatic buildings, it is the organization of their structure that thrills our disordered English minds, for here the Architecture has been planned not only in its form and function, but in the manner of its erection. The layout of the builder's plant, the process of dove-tailing the work of different trades, the speed of working, the sequence of the building operations, all these have reached a pitch to which we are unaccustomed. A visit to the framework of a tall building, with the steel frame erected, the services in position, and the walls growing hourly, panel by panel, is better even than a cocktail; and like all great performances, it is simplicity which lies at the root of this success in work, a success astonishing in its economic effect on the cost of building.

In England, at present, the skilled workman will receive in a week what his New York comrade will be drawing per diem, and so it is throughout all the trades; yet the cost of London work per cubic foot will be as high as in New York, with a decided balance in favour of the American building on the score of completeness of finish and material. What is customarily demanded in New York is luxury in London, and it seems safe to say that this is bound to remain the case until both English architects and builders re-organize their methods and collaborate more closely in studying the technique of economy in the application of labour to both shop materials and the various operators of erection on the site.

After a burst of genuine admiration for American architects and what they are producing, there is nevertheless heard a still small voice enquiring "Where will it all end? What is the future of New York, with its problems of congestion in things human and inhuman?" One can visualize the future building, with its walls perhaps of huge slabs suspended from each floor, containing every imaginable supply and equipment. Perhaps the future skyscraper will bulge at its summit and spring like an umbrella pine from a slender stalk. Perhaps New York will one day look like a city that is upside down—perhaps —only perhaps—it is a little bit upside down already.

Sept., 1926. "X."

Public Works

The Public Buildings Bill has become a law and it is now for the Institute to determine that its own work, which has been so far well done, has thrown upon its shoulders new and further responsibilities.

The Public Works Committee under Mr. Medary's leadership gave to this bill its constant attention through the long period of its consideration by Congress, and the Institute may credit itself with modifications and improvements in the bill which were to a large extent brought about by the efforts and thought of this Committee. The responsibility of architects is to show Congress that the aim of the Institute is not to obtain commissions for its members through the agency of the Public Works Committee but to offer its aid and experience towards the best solution of government building problems.

There will be some architects who feel disappointment because so little of this great appropriation is to be apportioned out among the members of the Institute; but if we stop at this point and consider that this incident is closed for us and that we must wait for another building bill before anything more can be done we will completely fail in our duty to ourselves and to the profession of architecture. This attitude would leave the Treasury Department with the impression that only a few architects are interested in a helpful way and that all others are simply interested in possible commissions.

There is no doubt that human nature does work in this way and many will have lost interest in this building program, but those who feel so will do well to consider that their own interest demands a renewed effort. Human nature has another side, that it becomes interested in that thing which it compels itself to do, and the Institute must now renew and continue its interest in those buildings which the government is to build and which individuals of the Institute may have hoped to design and to carry out. If, now, each chapter will offer its collective service in an advisory way and on any workable terms to the Treasury Department it will be laying down a foundation of good will and understanding which will become valuable.

If, on the other hand, we are inclined to stand upon a kind of dignity and say that the profession should not beg its way in by offering its service for nothing we should, at least, balance against this attitude the great good that will develop if the Congress and Treasury Department can be made to realize that the Public Works Committee truly represents the Institute and that architects who are members of the Institute, all over the country, are willing to make sacrifices to the end that Government buildings shall be as well done as possible and shall belong properly to the neighborhood in which they are built.

Letters have been sent to the Presidents of each Chapter from the present Public Works Committee pointing out ways and means of approach to this problem. Answers have been received indicating the willingness which the Committee believes to exist generally and it is this willingness to serve that will assure the authorities in Washington that the American Institute of Architects was founded and exists to "make the profession of architecture of ever-increasing service to society."

ABRAM GARFIELD, *Chairman.*

Letters to the Editor

Stresses in Structural Steel

To the Editor of the Journal:

In the annual address of the retiring President of the Institute, delivered at its annual convention, May 5, 1926, he said, in part:

> "A competition has developed between structural steel on the one hand and reinforced concrete on the other. This competition, which is being promoted by large producing concerns, interested in one system or the other, has reached a stage that each side is having its engineers increase its allowable fibre stresses, and decrease the calculated live loads, until in many buildings the factor of safety is brought alarmingly low. The condition may be regarded as menacing . . . stresses on concrete run up to the maximum limit, and, on steel to a higher limit than ever before allowable, it behooves our offices to be sure that wind pressure is not neglected and that every eccentric load is provided for."

It is with amazement that one reads these words. It is true that there is a well defined demand for increased stresses in structural steel and this came about in a legitimate and proper manner. Furthermore, some seventy-odd cities and states have revised their Building Codes to permit the use of 18,000 pounds per square inch as the basic stress in structural steel, instead of the old stress of 16,000 pounds which was adopted nearly forty years ago for Bessemer steel of uncertain quality, as well as by an engineering profession which has made advances in every way comparable with those made by the architectural profession.

The Committee on Stresses of the American Society of Civil Engineers made a report, December 9, 1924, in which the majority (eight members) recommended a basic stress of 20,000 pounds per square inch for structural steel in buildings and similar structures and the minority (four members) recommended a basic stress of 18,000 pounds. Thoughtful and well informed Americans know full well that the American Society of Civil Engineers is favorably comparable in every way even with the Institute itself.

The Building Code Committee of the U. S. Department of Commerce has recommended the basic stress of 18,000 pounds. Two of the seven members of that committee are very prominent members of the Institute. A joint committee of the American Society of Civil Engineers and the American Institute of Steel Construction has also recommended the 18,000 pound basic stress.

It will probably cause the worthy President some uneasiness when he learns that the American Railway Engineering Association recommends that existing railroad bridges, in good condition, shall be stressed to 26,000 pounds (basic) before they are condemned. And so it goes.

The statement that this increase in allowable steel stresses results from competition between steel and concrete is incorrect and the rather disparaging references to structural engineers are unworthy of the Institute. As to structural steel, the increased stresses are but an advanced and justifiable step made by a progressive engineering profession. It is but fair that the members of the Institute should know the facts in the matter.

A. T. North.

The Proceedings of the Fifty-ninth Annual Convention

We are asked to announce that as long as the supply lasts the Institute will be glad to supply copies of the Proceedings of the last Convention to libraries upon receipt of a request addressed to The Executive Secretary, The Octagon House, Washington, D. C.

Institute Business

Sept. 30, 1926.

To the Members of the Institute:

The names of the following applicants may come before the Board of Directors or its Executive Committee for action on their admission to the Institute and, if elected, the applicants will be assigned to the Chapters indicated:

Boston Chapter	Frank Lyman Austin
Brooklyn Chapter	Arthur L. Guptill
Buffalo Chapter	Cyrus K. Porter
Central Illinois Chapter	John E. Zimmee
Chicago Chapter	David Adler, Walter A. McDougall
Cincinnati Chapter	Charles Wilkins Short, Jr.
Cleveland Chapter	Munroe Walker Copper, Jr.
Columbus Chapter	John Quincy Adams
Connecticut Chapter	Charles E. Cutler, Lorenzo Hamilton
Detroit Chapter	Richard Perrien Raseman
Florida Chapter	Marion I. Manley, Earl Purdy, John Tracey, Clark N. Tingley
Iowa Chapter	Vernon F. Tinsley
Minnesota Chapter	Clyde W. Smith
New York Chapter	J. H. Phillips
North Texas Chapter	Roy Keith Hamberlin, Arthur E. Thomas
San Francisco Chapter	Howard E. Burnett, Warren Porter Skillings, Lester W. Hurd, Charles F. Masten
Tennessee Chapter	Isaac Albert Baum, Joe T. Wallace
Washington, D. C., Chapter	Carlton Van Valkenburg, Sumner K. Wiley
Washington State Chapter	Fred G. Rounds
Wisconsin Chapter	Francis S. Gurda

You are invited, as directed in the By-Laws, to send privileged communications before October 30, on the eligibility of the candidates, for the information and guidance of the Members of the Board of Directors in their final ballot. No applicant will be finally passed upon should any Chapter request within the thirty day period an extension of time for purpose of investigation.

Frank C. Baldwin, *Secretary.*

Obituary

Francis Ward Chandler

Elected to the Institute in 1875; to Fellowship in 1889
Died at North Haven, Maine, 8 September, 1926

Thomas Nolan

Elected to the Institute in 1885; to Fellowship in 1889
Died at Moylan, Pa., 9 September, 1926

Thomas Nolan, Professor Emeritus of Architectural Construction at the University of Pennsylvania, died after a long illness at the age of 69. After teaching for several years at the University he was made an assistant professor in 1894 and was advanced to a full professorship in 1911. He was graduated from the University of Rochester in 1879 and later studied at Columbia and the Ecole des Beaux Arts in Paris. He was the designer of the first steel skeleton structure in Western New York, which was the Rochester Chamber of Commerce Building. He is survived by his widow, Marie L. Nolan.

Structural Service Department

LEROY E. KERN, *Technical Secretary*

In connection with the work of the Committee on Structural Service of the American Institute of Architects and in collaboration with other professional societies and organized bodies having the same objective—improvement in building materials and methods and better shelter for humanity in all its manifold vocations and avocations

Abstracts

U. S. Government Master Specification for Fire Clay Brick (3-f-6. *(Federal Specifications Board Specification No. 268, Circular of the Bureau of Standards No. 299.)*

Classes. Fire-Clay brick shall be of the following classes: SH75, H75, H57, M73, H25, M7.

Material and Workmanship. The material covered by this specification is a brick of standard or special shape composed of heat-resistant clay or clays and which has been burned to produce the desired strength and structure. The brick shall be compact, of homogeneous structure, free from checks, cracks, voids, or soft centers. All corners shall be sufficiently solid and strong to prevent excessive crumbling or chipping when handled.

General Requirements. All brick of the standard 9-inch series shall not vary from specified dimensions more than ⅛ inch in width and thickness, and 3/16 inch in length. For special shapes no dimensions shall vary more than 2 per cent. from the dimension specified unless greater variation is allowed by contract, but in no case shall a variation of less than ⅛ inch be specified, and they shall be free from such sweels, warps, twists, or distortions as shall prevent ready and accurate laying up with a maximum joint of ⅛ inch.

Detail Requirements. 1. Class SH75.—(a) The material shall contain not more than 65 per cent. total solica (SiO_2).

(b) The softening point shall be not less than that of standard pyrometric cone No. 31 (approximately 1,680°C. or 3,056°F.).

(c) The material shall withstand 15 quenchings without failure.

(d) When specified the brick shall pass the simulated service test.

2. Class H75.—(a) The softening point shall not be less than that of standard pyrometric cone No. 31 (approximately 1,680°C. or 3,056°F.).

(b) The material shall withstand 12 quenchings without failure.

3. Class H57.—(a) The softening point shall be not less than that of standard pyrometric cone No. 31 (approximately 1,680°C. or 3,056°F.).

(b) The material shall withstand five quenchings without failure.

(c) The absorption after reheating shall be not less than 6 per cent. nor more than 16 per cent.

4. Class M73.—(a) The softening point shall be not less than that of standard pyrometric cone No. 29 (approximately 1,640° C. or 2,984°F.).

(b) The refractory shall withstand two quenchings without failure.

5. Class H25.—(a) Siliceous brick shall contain 70 per cent. or more total silica (SiO_2).

(b) The softening point shall be not less than that of standard pyrometric cone No. 28 (approximately 1,615°C. or 2,939°F.).

(c) The material shall withstand six quenchings without failure.

(d) The deformatoin under load shall not exceed 3 per cent.

6. Class M7.—(a) Siliceous brick shall contain 70 per cent or more total silica (SiO_2).

(b) The softening point shall be not less than that of standard pyrometric cone No. 28 (approximately 1,615°C. or 2,939°F.).

(c) The material shall withstand three quenchings without failure.

(d) The deformation under load shall not exceed 4 per cent.

Notes: Class Definitions.—Class SH75.—Brick of this class are intended for use under the most severe conditions of boiler practice, such as marine boilers used by the Navy and in plant installations designed to operate at an average rating of not less than 175. Material of this class should have high resistance to slagging, spalling, and severe temperatures.

In the United States Navy service brick of class SH75 are used in oil-fired boilers operated at greater than 500 per cent. rating and where severe vibrations and rapid changes in temperature occur. In this service the brick are secured by anchor bolts.

Class H75.—Brick of this class are intended for use under conditions such as are encountered in general boiler practice. For this class resistance to slagging, spalling, and high temperature is important.

Class H57.—Brick of this class are intended for use under conditions wheer resistance to spalling is not of great importance and where resistance to slagging and high temperature is important. In general boiler practice they may be used in the side walls, but, if the refractories used are limited to one brand, material of class H75 is recommended.

Class M73.—Brick of this class are intended for use at moderate temperatures, such as are encountered in hand-fired boilers operated at average rating not exceeding 125. Resistance to spalling and slagging is important under these conditions of temperature.

Class H25.—This class is intended primarily for brick of siliceous nature and for service in which resistance to slagging and spalling is not of particular importance, but in which the refractory is expected to resist deformation under load at relatively high temperatures.

Brick of class H25 are particularly adapted for service under conditions where resistance to deformation under load, with soaking heats at relatively high temperatures, is important, but where there is no marked fluctuation of temperature below approximately 650°C. (1,202°F.).

Brick of class H75 which withstand the load test satisfactorily may be included in this class.

Class M7.—This class is intended primarily for brick of siliceous nature, for service at moderate temperatures, and under the conditions where resistance to spalling and slagging is not important, but where resistance to deformation under load is important.

Brick of this class are particularly adapted for service under conditions where resistance to deformation under load, with soaking heats at moderate temperatures, is important, but where there is no marked fluctuation of temperature below approximately 650°C. (1,202°F.)

Brick of class M73 which withstand the load test satisfactorily may be included in this class.

5. General Information.—United States Bureau of Standards Circular No. 282 contains general information on the manufacture, properties, and uses of fire-clay brick.

ARNOLD W. BRUNNER
AND HIS WORK

By

ROBERT I. AITKEN
EDWIN H. BLASHFIELD
DANIEL C. FRENCH
CLAYTON HAMILTON
J. HORACE McFARLAND
BRANDER MATTHEWS
BRAND WHITLOCK
CHARLES HARRIS WHITAKER

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NEW YORK
1926

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MEXICO CITY—CHURCH OF LA SANTISSIMA